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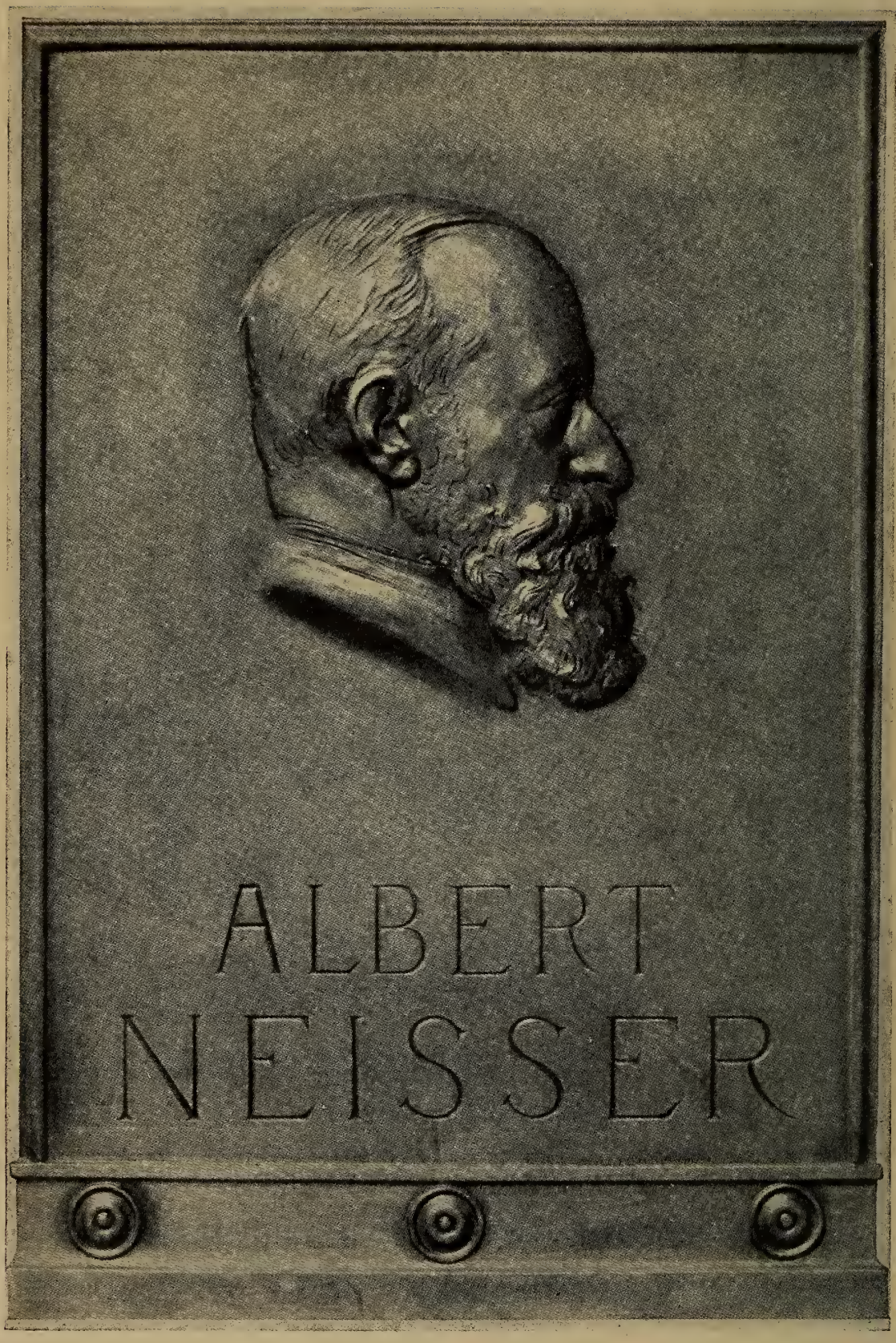
ALBERT
NEISSER

THE TREATMENT OF GONORRHEA

AND ITS COMPLICATIONS

IN MEN AND WOMEN

FOR THE GENERAL PRACTITIONER

BY

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TO

PROFESSOR ALBERT NEISSER

WHO BY HIS DISCOVERY OF
THE GONOCOCCUS, THE SPECIFIC CAUSE OF GONORRHEA,
HAS RENDERED AN IMMORTAL SERVICE
TO HUMANITY,
THIS BOOK IS RESPECTFULLY DEDICATED

BY THE AUTHOR

PREFACE

Some specialists in venereal diseases say that all patients afflicted with gonorrhea should go to a specialist for treatment, and not to a general practitioner. They say that the general practitioner is not competent to treat gonorrhea properly. Whether these statements are made by the above referred to specialists from purely altruistic motives, exclusively out of consideration for the patient's welfare, is not a question that needs be discussed here. Of course the specialist would be financially benefited; there is no doubt about that; but the patient would also be greatly benefited, and there would be fewer uncured and incurable cases in the land. Be this as it may, granting the desirability of having every case of gonorrhea treated by a specialist, this is a Utopian desire; a hope that will not be realized for fifty or a hundred years to come. There are not enough gonorrhea specialists in the country to treat all the cases of gonorrhea. We are told that next to measles gonorrhea is the most widespread disease; and as all cases of measles could not be treated by pediatrists, so all cases of gonorrhea could not be treated by urologists. And assuming that the number of "gonorrhea" specialists should become adequate to the task of handling all cases of gonorrhea—supply generally follows demand—it would be absolutely impossible for everybody to patronize a specialist: their economic condition would not permit it. We forget that medicine is greatly influenced by the financial condi-

tion of the people. And medical treatment will not become ideal until a radical change has taken place in our social system. And as this is going to take some time, things will run the way they have been running for another century or two, and ninety per cent. of all men unfortunate enough to contract gonorrhea will continue to be treated by the general practitioner. And it is therefore our duty to do our share to make the general practitioner as competent as possible.

The instruction in venereal and sexual diseases given in our medical colleges is disgracefully meager and is responsible for the inadequacy of the average general practitioner in the treatment of these diseases, and for the existence of the quack. A good plain treatise on the treatment of gonorrhea and its complications, intended specially for the general practitioner, seemed to the author as well as to numerous readers of his books and journals, a desideratum. For we have no satisfactory textbooks on gonorrhea. We have a number of books on genito-urinary surgery which contain chapters on gonorrhea, we have a number of quiz compends on venereal diseases, but they are not books which answer the demands of the general practitioner. The books specially devoted to the treatment of gonorrhea, like Wossidlo's, are too technical and are suitable chiefly for specialists. The best book on the treatment of gonorrhea so far is Luys' "Traité de la Blenorrhagie," but unfortunately his favorite methods of treatment are urethrovesical irrigations and urethroscopy, and to advise the physician to treat his cases of gonorrhea with irrigations and by the aid of the urethroscope is to do the physician and his patients a very poor service indeed. I shudder to

think of the complications and of the number of incurable cases that would result. Even in skilled hands urethroscopic treatment is not accomplishing what its zealous advocates claim it does; in unskilled and hurried hands, as must be those of the physician who treats all other ailments of the flesh, it would lead to frequent disaster. The number of damaged urethras would be too great to be counted. *Noli nocere* is the first requirement of any treatment which we are recommending to the general practitioner, and this motto has been well kept in mind throughout the book.

The style of the book is the plain, non-stilted style, which the author has used in his "Treatment of Sexual Impotence," which he uses in his CRITIC and GUIDE editorials, which he uses in his ordinary conversation. Practically the entire book has been dictated right from the head, without referring to any books. It was considered a fairer way to present the present day status of the successful treatment of gonorrhea and its complications than by merely rehashing a dozen textbooks. It was thought that what a specialist with fair abilities and a good memory, who has been treating venereal diseases daily for twenty years, could not say right off, without reference to books, regarding gonorrhea or any of its complications, was not worth knowing, was not necessary for the general practitioner to know. Of course before sending the typewritten manuscript to the printer I gave it some finishing touches, but the book is distinctly a personal book, and represents how Dr. Robinson treats gonorrhea and its complications and not how A., B. and C. treat them. This does not mean that the author has not read and studied the various text-

books and papers on gonorrhea; on the contrary, he probably read and studied every one of any significance; but it does mean that nothing is represented in this book that has not passed through the crucible of his judgment and experience.

The author is convinced that by following the teachings of this volume the general practitioner will become much more successful in the treatment of his gonorrheal patients than he has been in the past.

W. J. R.

12 Mt. Morris Park West, New York.

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PROF. ALBERT NEISSER . . . . . *Frontispiece*

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CHAPTER I

INTRODUCTION

THE EXTENT AND SERIOUSNESS OF GONORRHEA

I suppose it would be the appropriate thing to start this book with a disquisition upon the widespread extent of gonorrhea and all the terrible ravages that it works in the individual and in the race. Gonorrhea *is* a widespread disease and it *does* cause great ravages in the individual and in the race. Nevertheless neither its extent nor its seriousness must be exaggerated. The writer has always had a great aversion to lurid exaggerations of any kind: first, because an exaggeration is an untruth, or a half-truth, which Tennyson declares to be the worst of lies; and second, an exaggeration usually defeats the very object in behalf of which it is propagated.

The exact or even the approximate extent of the prevalence of gonorrhea no living person knows. All figures or statements in this respect are pure guesses without any solid foundation. We all go by impressions. The general practitioner practicing in a small town, who frequently does not see a case in ten years (because the patients go to neighboring large cities for treatment or are treated by their druggist and barber) is apt to minimize the extent of venereal disease. The specialist who treats nothing but

gonorrhea is apt to judge of all humanity by his patients, and to imagine that everybody has or has had gonorrhea, forgetting that after all he sees only a very small percentage of the population, and that the people who are free from the disease do not go to him at all and he has therefore no means of knowing whether they have or have not the disease.

I have always been fighting against the specialist's tendency to exaggeration and strabismus, and I will say right at the outset that the statements usually made that eighty to ninety per cent. of the male population of every civilized country have or have had gonorrhea are to me absurd. It is the same story of the extreme swinging of the pendulum in the other direction. For a long time gonorrhea was practically disregarded as a disease, and its sequelæ in the individual, and its dangers to the welfare and life of the future wives, were not even dreamed of. Noeggerath made himself immortal, and deserves the eternal gratitude of all womanhood, by calling the attention of the profession to latent gonorrhea and its dangers. But I am sure that his statement that eighty per cent. of the male population has gonorrhea, that ninety per cent. of them are never cured, and that they all eventually infect their wives was a wild exaggeration.

I believe that if we say that twenty-five per cent. of the male population suffer with gonorrhea at one time or another, we would rather be overstating than understating the truth. Of course its prevalence varies in different strata of society. In some of the lower strata it may be as high as one hundred per cent., but then on the other hand there are several strata of society in which it does not, in my

opinion, exist to a greater extent than five or ten per cent.

As to the curability of this disease I also disagree with the somber estimates of the pessimists. Instead of ninety per cent. remaining uncured or being uncurable, I believe that the greatest percentage of gonorrheas end in a practical cure. I say "practical" because a good many cases may show for many years some shreds in the urine or a minute droplet of discharge and still be practically cured, that is, free from gonococci and non-dangerous to their partners. Naturally, I also disagree with the statement as to the frequency with which wives acquire the disease innocently from their husbands. According to the statements of some of our zealous friends practically every woman who marries a man who has had gonorrhea acquires the disease, and as according to their statements eighty or ninety per cent. of men have had gonorrhea at one time or another and ninety per cent. of these cases remain uncured, practically every married woman would be suffering from gonorrhea. Do they know to what absurd conclusions this absurd statement leads? The race would have become practically extinct if the statements just referred to were true. Fortunately they are not. As is well known, Prof. Erb's investigation in his private practice led him to the conclusion that only four per cent. of women who married husbands who had had gonorrhea contracted the disease. Allowing for the fact that his practice was among the well to do, who can afford skillful, prolonged and painstaking treatment, we would be justified in stating that about ten per cent. of married women acquire the disease innocently, a high enough figure as it is, enough to terrify us without any exaggerations! Exaggeration and painting in lurid

colors may be permissible for propaganda purposes, but they should be frowned upon by scientists whose only function is to tell the truth.

SERIOUSNESS OF GONORRHEA

Gonorrhea is a serious disease, serious to the individual male, potentially serious to his wife and to his children. But even here we must not exaggerate. One writer says we must tell our young men that gonorrhea may end in death. But so may measles, so may a pinprick, so may the paring of a corn or the extraction of a tooth. It is all a matter of the frequency of such an eventuality. It is true that gonorrhea may end in an endocarditis or a general septicemia leading to death, but these results are extremely rare, and we gain nothing by using these possible but extremely rare sequelæ as specters to frighten our young men. In the vast majority of cases gonorrhea is a perfectly curable disease, leaving few or no sequelæ.

Gonorrhea is a serious and dangerous disease, but its seriousness and dangerousness do not reside in the gonorrhea per se, but in our social-economic conditions, which do not permit the individual the proper rest and the proper treatment. If our patients attacked with gonorrhea could at once obtain the same care and treatment as do patients attacked with typhoid fever or pneumonia, ninety per cent. of them would be perfectly well by the end of two or three weeks.

But because gonorrhea is a "shameful" disease, because the young man must hide its existence from his parents, because there are no hospitals which accept venereal patients, because the patient must keep on working, perhaps

running up and down stairs and lifting heavy weights, because he is unable to go to skillful specialists, but is obliged to treat himself with nostrums or be treated by the hurried and not always competent general practitioner, or in the frequently worse than useless dispensaries; because of these things gonorrhea becomes in many cases such a serious disease, dangerous to the individual himself (arthritis, endocarditis, etc.), to his wife (endometritis, salpingitis, ovaritis), to the child (ophthalmia neonatorum) and by his becoming sterile or by rendering the wife sterile, to the race.

To emphasize and to recapitulate: Skillfully treated from the beginning, under proper hygienic and dietetic conditions, gonorrhea is a benign affection; neglected or maltreated gonorrhea becomes an intensely dangerous disease. Which again brings us to the point emphasized by the author so many times, that if we wish to be successful in the treatment of our patients we must demand an improvement or a radical change in the social-economic conditions of the people.

CHAPTER II

THE CLASSIFICATION OF URETHRAL INFLAMMATIONS

Urethritis is an inflammation of the urethra accompanied by pain, swelling and *discharge*. Not all urethral discharges and inflammations are due to the gonococcus. Of course gonorrhea is so much more frequent and serious that it overshadows all other urethral troubles. Nevertheless if we wish to avoid blunders, blunders which may prove extremely serious to the patient, we must bear in mind that a discharge from the urethra may be of other than gonococcal origin, and I therefore give at the outset a classification of urethral inflammations. Bearing this classification in mind may help one to avoid gross errors in diagnosis.

We divide them first into two large classes:

I. Bacterial.

II. Non-bacterial.

In the bacterial class we have the following varieties:

1. Gonococcal or Gonorrheal;
2. Common or simple bacterial;
3. Chancroidal;
4. Syphilitic;
5. Tubercular;
6. Neoplastic (?)

The non-bacterial or aseptic urethrites may be classified as follows:

7. Chemical;
8. Traumatic;
9. Toxic;
10. Diathesic.

To class urethrorrhea among the urethrites is incorrect, for urethrorrhea can hardly be considered an inflammation of the urethra. Still more incorrect and utterly without excuse is to class prostatorrhea and so-called spermatorrhea among the urethrites.

CHAPTER III

GONORRHEAL URETHRITIS IN THE MALE

Gonorrhea or gonorrheal urethritis is an inflammation of the urethra caused by a germ which was discovered by Neisser in 1879 and named by him the gonococcus, or the gonococcus of Neisser.

Taking the word gonorrhea in its pre-Neisserian sense, as synonymous with urethral discharge, the disease is one of the oldest known. It is mentioned in the Bible, and it has been described by Greek and Roman writers. Of course we have no means of knowing whether the urethral discharge spoken of by the ancients was specific in character and due to the gonococcus, or whether it was due to some other germ, or altogether non-bacterial; but we are justified in assuming that at that time, the same as now, most of the cases were due to the gonococcus. The description given by the ancients tallies very well with our gonorrhea.

The etymology of the word gonorrhea is barbarous in the extreme, if we consider its significance. Literally it means a running of semen, from: *gonos*=semen and *rheo*=I run. The ancients thought that the urethral discharge was due to running out of spoiled, poisoned semen. We know better, but all attempts to change the word have proved and will prove fruitless. It is difficult or impossible to change an incorrect but thoroughly established word for one sci-

entifically correct. Nor is it necessary. Language was made for man, not man for language, and as long as the word stands for something definite and gives rise to no confusion in anybody's mind, it is a good word, and all attempts to change it must prove quixotic. The name which Neisser gave to the specific germ of gonorrhea is not any better, for what does gonococcus mean? It means semencoccus, which is of course absurd. But we know what it stands for, and it is useless to attempt to change it. "Gonorrheal urethritis" or "gonococcal urethritis" are not much better, nor are the terms blenorrhea and blenorrhagia, used in Germany and France respectively, a great improvement. We will therefore adhere to the old term gonorrhea, it being understood that when we use the term without any other qualification, we refer to an inflammation of the urethra caused by the diplococcus of Neisser. When speaking of the complications we will use gonorrheal prostatitis, gonorrheal epididymitis, gonorrheal vesiculitis, etc.

The infection takes place almost exclusively during sexual intercourse. But note that I said *almost*. I do not at all deny the possibility of non-venereal infection, from soiled linen or infected instruments; and it will not do to sneer at the possibility of infection from a bathtub or the seat of a water-closet. In a Berlin clinic I watched an acutely gonorrheal patient go into a privy. When he got up there was about half a teaspoonful of thick creamy pus on the seat, at the point touched by the meatus. A person sitting down on that seat within an hour or two would be very apt to get some of the pus transferred to his urethra and to develop a gonorrheal urethritis. That gonorrheal vulvo-

vaginitis in little girls—which however seems to be of a different character from the gonorrhea of adults—may and often does assume the character of an epidemic, the infection being carried by soiled linen, by the nurses, etc., and is often contracted in the water-closets of the school, is of course well known.

But the histories of my patients alone would be sufficient to make me refrain from being dogmatic about the non-possibility of extra-venereal gonorrheal infection. As I stated elsewhere, I *know* that my patients do not lie to me; they *certainly* do not all lie. They know that I am not a hypocrite, that I am not going to pass sanctimonious judgment upon them, and they have no reason whatever to lie about the manner in which they acquired their gonorrhea or syphilis. They also fear that deceiving the doctor about any detail in their history may lead to different treatment and that thus they may not be benefited or may even be injured. When, therefore, an intelligent patient assures me that he had never had sexual intercourse, or had not had any for several months, that he knows no cause for his urethral discharge, which shows the presence of gonococci, except perhaps that he visited a toilet in a railway or subway station, or slept in a second rate hotel in which the bedding was not of immaculate purity, I see no reason whatever for doubting his—or her—story.

Of course the cases of extra-venereal gonorrheal infection are few in number in comparison with those contracted during sexual intercourse; but it is important that their possibility be not denied altogether. Admitting their possibility may prevent unjust accusations, and occasionally the breaking up of a home.

CHAPTER IV

THE GERM AND THE DIAGNOSIS OF GONORRHEA

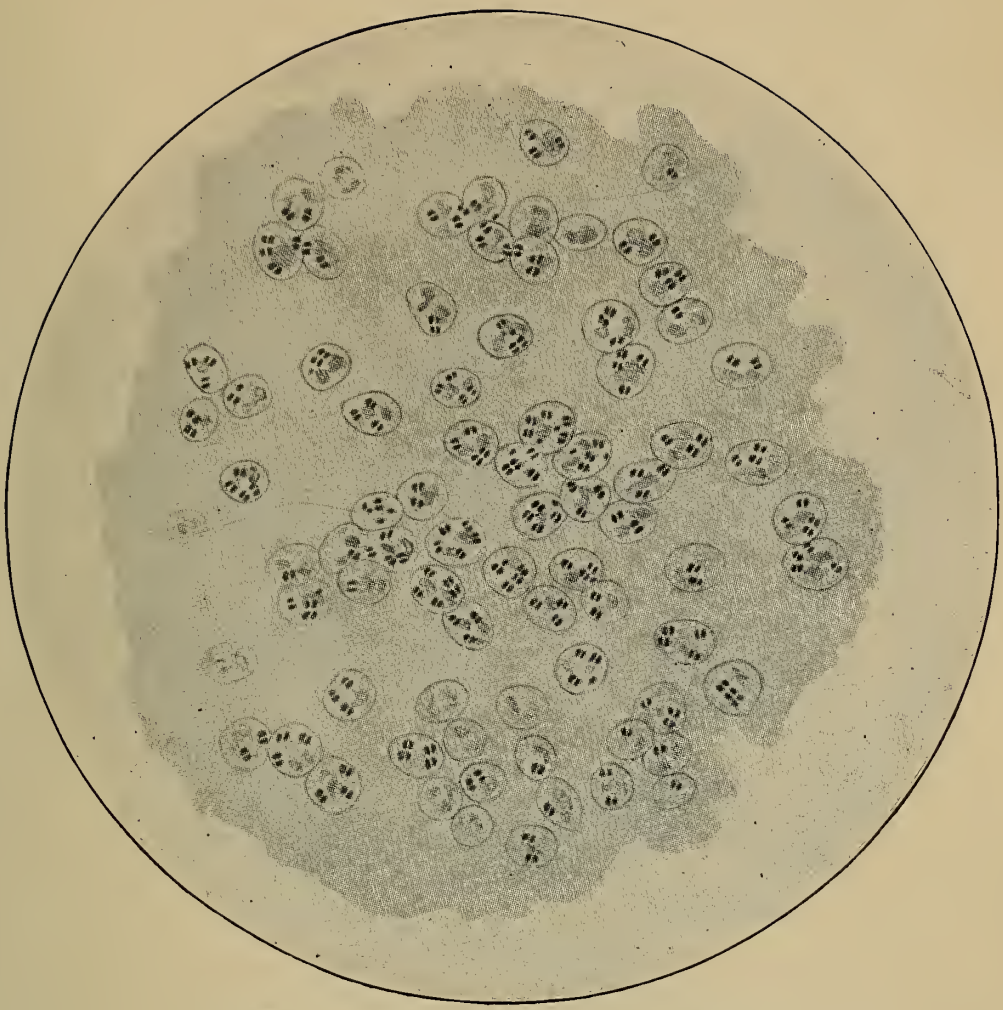
The gonococcus, the little germ or micro-organism which is responsible for so much human misery, is exclusively a human parasite. It can live and thrive in the human body only. All attempts to inoculate the gonococcus in any animal have failed; no animal can be infected with gonorrhea. Perhaps it was sent to the human race to keep it from promiscuity. It is about half the size of a red blood corpuscle, about 1-50 μ in length and 0.7 μ in width. It is a diplococcus, that is, it occurs always in twos or in multiples of twos. This is due to its method of division. Under the microscope in good preparations they appear like a coffee-bean which has been opened and laid out flat. They are found both in the cells and outside of the cells, and we speak of them as extra-cellular and intracellular, but the intracellular position is the characteristic one, and a microscopic specimen which contains many extra-cellular but no intracellular cocci would not be typical and would not give us the right to make the diagnosis gonorrhea.

It stains readily with the ordinary basic anilin dyes, such as methylene blue, bismarck brown, methyl violet, saffronin, fuchsin, etc., and if the smear is properly prepared can be easily identified under the microscope. Numerous stains have been invented, giving us very pretty microscopic speci-

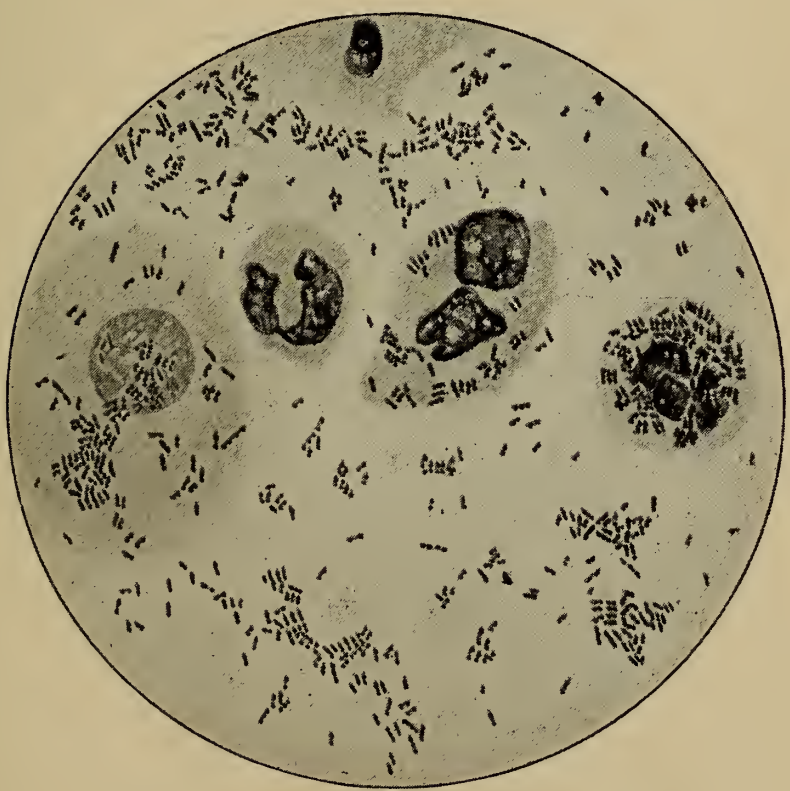
mens, but the general practitioner needs know but one or at most two stains, and if he only learns to apply them properly he will get for every practical purpose results as good as does the expert bacteriologist with the very complicated and refined stains. But the smear must be prepared properly.

HOW TO PREPARE A PROPER SMEAR

One of the common errors to which the beginner is liable is to make the smear too thick. This is an error which must be guarded against; the thinner the layer of pus the better. Take a clean glass slide, take a wooden stick or a toothpick and wind around it a small wisp of cotton, dip the cotton in sterile water and shake off the excess. If the pus is gushing from the urethra, wipe off the meatus with some cotton or wash it off with sterile water to prevent contamination with germs which may abound on the glans and meatus. Insert the cotton carrier into the fossa navicularis, and with the pus thus obtained make several narrow smears over the glass slide. This distributes the pus very evenly and very thinly, and for this reason I prefer this method to the platinum loop or to squeezing the pus between two slides. Where the pus is very scanty and we have to go deep into the urethra to obtain some, there the platinum loop may be used. We then allow the thin layer of pus to dry on the slide, which takes a minute or two, then pass it three times lightly and quickly over the flame of an alcohol lamp or Bunsen burner. This fixes the preparation. With a glass dropper we then drop one or two or three drops of Loeffler's solution of methylene blue, allow it to remain two minutes, then wash off in running



ACUTE GONORRHEAL URETHRITIS



NON-GONORRHEAL URETHRITIS

water. We then dry it with blotting paper (this step may be left off) put on a cover glass, put a drop of cedar oil in the center of the cover glass, and examine with a 1-12 oil immersion lens. And if the typical diplococci are present, the patient presents the ordinary history and symptomatology of gonorrhea, the diagnosis is settled and no further investigations are necessary.

We hear of the danger of making a diagnosis of gonorrhea by the microscope alone, of the possibility of confusing gonococci with the pseudo-gonococci and the micrococcus catarrhalis, etc., but these are all academic points, and in the vastest majority of cases the general practitioner will not be confronted with them. The general practitioner can never hope to become an expert bacteriologist, and where a medico-legal question comes up, or where a man wants a final authoritative judgment as to his complete cure and permissibility to enter matrimony, the decision will have to be put into the hands of a specialist.

In the vast majority of cases the patient comes to the doctor with unmistakable signs and symptoms of urethritis. The decision to be made then is only: Is it a gonorrheal or a non-gonorrheal urethritis?—and to decide that question the methylene blue test is sufficient in the vast majority of cases.

It occasionally happens that either because the gonococci have undergone a degenerative morphologic change, or on account of contamination with other germs, it is impossible to decide definitely whether the cocci that we see in the field are gonococci or not. In such a case we must use the well known Gram stain, which was elaborated for us by Roux of the Pasteur Institute.

Germs can be divided, according to the manner in which they behave toward the Gram stain, into Gram-positive and Gram-negative. The Gram-positive take the Gram stain and are stained by it a deep blue-black. The Gram-negative do not take the Gram stain, or if they have been stained by some of the anilin dyes are decolorized by the procedure involved in making the Gram test. The gonococcus is a Gram-negative germ. So then if we stain a specimen with one of the anilin dyes, examine it under the microscope and see clearly a number of cocci, then we subject the specimen to the Gram stain, and examine again the specimen under the microscope and find that the cocci have become decolorized, we know that we have to deal with gonococci, while if the cocci which we saw before remain stained they are not gonococci.

The Gram test is performed as follows. Prepare and fix the slide as before, pour over it some anilin-water-gentian-violet dye and leave on for two minutes, then shake off the excess and dip in Lugol's solution. Now dip the slide in absolute alcohol. This decolorizes the gonococci. If we examine the specimen at this stage we will find that the Gram-positive cocci, if there are any there, are of a blue-black color, while the gonococci have disappeared from the field, so to say, for being unstained they can be seen but with difficulty. If we wish, however, we can use a double stain, and after removing the slide from the absolute alcohol we dip it in or pour over it some bismarck brown solution. Examining the specimen then, the gonococci will appear of a light brownish color, while the pseudo-gonococci will be blue-black.

CULTURES

The gonococcus is a difficult germ to cultivate. It does not grow on ordinary culture media, such as agar-agar, glycerin-gelatin, etc. The medium must contain some human serum, blood serum, ascitic fluid, etc. The general practitioner cannot possess the facilities nor can he acquire the skill necessary for making cultures of gonococci. Nor is the procedure of very much use. We often hear it stated by some genito-urinary specialists that we cannot make a diagnosis of gonorrhea from microscopic examinations alone, that we must always make a culture. This is a fatuous statement, often made I fear for the sake of personal aggrandizement. And again, first of all, even a properly made culture in the hands of an expert bacteriologist is not absolutely conclusive evidence, errors can occur even there. Second, the cultures as made by the average laboratory are very often worse than useless, because misleading. Third, the cases where with the history, clinical symptoms, and bacteriological findings we are unable to make our diagnosis, are so rare as to be negligible. In over twenty years' practice, treating patients with I believe a fair degree of intelligence and success, I have not found it necessary once to have recourse to a culture. Fourth, it is not so important. I mean just what I say, that the differential diagnosis between the gonococcus and some other coccus is not such a life and death matter as some of our confrères would unwittingly make us believe. One would think that the gonococcus is the only deadly bacillus and that if the symptoms of which the patient complains are due to some other germ the case is of no importance. This

is far from being true. Other bacteria flourishing in the urethra may give rise to as much trouble as the gonococcus. We can have very severe epididymitis, prostatitis, or vesiculitis from the coli bacillus, staphylococcus, etc.; and cystitis, pyelitis, and pyelonephritis are much more apt to follow infection by other germs than they are to be the result of gonococcal infection. So what's the difference? Whether the urethritis and its various complications are due to the gonococcus or to other germs they have to be treated, and the treatment is practically the same whatever the infecting agent is. Fifth, the complement fixation test is more reliable, gives us more information, takes less time and is less troublesome to perform. The complement fixation test, similar to the Wassermann test for syphilis, is now performed by all serologic laboratories. All the general practitioner has to do is to draw a dram or two of blood from one of the veins in the elbow, put it in a sterilized bottle and send it to the laboratory.

CHAPTER V

THE COURSE AND SYMPTOMATOLOGY OF ACUTE GONORRHEA

The course of acute gonorrhea, or more specifically speaking, acute gonorrheal urethritis in the male may be divided into five stages: (1) the stage of incubation, (2) prodromal, (3) acute or ascending, (4) subacute or stationary, and (5) declining or subsiding stage.

The stage of incubation is the period from the moment of infection to the moment of the appearance of subjective symptoms. When the gonococci get into the urethra they do not cause symptoms at once (it would be better if they did). It takes them some time to "settle down," to increase and multiply, to get into and between the epithelial cells of the urethral mucous membrane, and cause inflammatory symptoms. The time required for this development, in other words the length of the incubation stage, varies in different cases; but the usual length is between three to five days. In other words it takes three to five days from the moment of an infectious intercourse until the patient becomes aware that there is anything the matter with him. During that time the patient is perfectly well. The incubation stage may only last twelve hours, and may last as long as two weeks; but this is exceptional. The shortest incubation stage in my personal experience was twenty-four hours, the longest twelve days. The re-

ported incubation stages of four to eight weeks may be taken with a grain of salt. Or perhaps it is possible that the gonococci are deposited on the glans under the prepuce, and only later on, after several weeks, become accidentally transported to the urethra. At any rate, it is well to remember that in the vast majority of cases of gonorrhea the incubation stage lasts from three to five days; the less common, but still not excessively rare, limits are: one to seven days.

At the end of this period the patient becomes aware of some peculiar sensation in the urethra—the prodromal stage commences. The patient feels a little tickling or burning in the urethra, particularly in the neighborhood of the fossa navicularis—where the gonococci generally settle down. If he looks at his penis he finds that the lips of the meatus are a little puffed, edematous and red; they may be slightly stuck together; but there is no discharge. If the patient is told to urinate, the urine is found clear. This stage lasts from about twelve to forty-eight hours, and the acute stage is before us. Then the most prominent symptom of gonorrhea, the discharge—which the patient has been fearing and hoping against hope would not come—makes its appearance. At first it is scanty, and almost a pure white; gradually it increases in amount, becomes very profuse, running almost continually and bathing the glans and prepuce, and assumes a yellowish, then greenish yellow color. The symptoms keep getting worse (unless checked by rational treatment). The lips of the meatus may be slightly eroded; the glans and the prepuce are somewhat red and swollen; the entire urethra, particularly the fossa navicularis, is sensitive and painful; the act of micturition

is painful, the urine causing a burning sensation, so that the patient abstains from urinating as long as possible; the entire penis may feel hot and turgid, and painful erections are not uncommon. If the patient urinates in two glasses, the first one is very turbid, but the second one is clear. This acute or ascending stage lasts from seven to ten days, when a stationary period lasting from one to two weeks supervenes. The discharge is less profuse, urination is less painful, but things remain *in statu quo,* without much change until the last, the declining stage. In this stage the symptoms abate rapidly, the discharge diminishes gradually, until there is but a scanty drop, and this also gradually disappears, until in two or three weeks—that is at the end of five or six weeks from the appearance of the first symptoms, the gonorrhea is completely cured. There is no discharge, the urine is perfectly clear, and no gonococci can be found.

The above is a faithful description of an average case of acute anterior urethritis; but where the inflammation extends to the posterior urethra, which is the case in the vast majority of instances, two other symptoms become prominent and cause great annoyance. These two symptoms are strangury, a strong desire to urinate every few minutes during the day (and several times during the night), and severe pain at the end of micturition. While in the course of anterior urethritis the act of micturition causes pain, it is not so intense, and is more of a scalding or burning sensation; here the pain, particularly while passing the last few drops, is very intense; the patient often grits his teeth, and a cold sweat bathes his forehead and body.

If the gonorrheal inflammation could be kept limited to

the anterior urethra, gonorrhea would be indeed if not a trifling, at least not a very serious disease. It is the advancing of the inflammation to the posterior urethra that renders gonorrhea one of the most annoying diseases we have to deal with. For it is through the inflammation of the posterior urethra that we get prostatitis, vesiculitis, deferentitis, epididymitis and cystitis, and the rarer but more serious renal, arthritic and cardiac complications.

I gave the symptomatology of a case of gonorrheal urethritis of average severity. There are various gradations however, from extremely acute or superacute to very mild or subacute.

SUPERACUTE GONORRHEAL URETHRITIS

Whether due to a special virulence of the gonococci, to an excessive dose of them, to a special susceptibility of the patient, or to the fact that he had indulged in an alcoholic debauch prior to the sexual one, some cases of gonorrhea pursue a violent stormy character from the very beginning. After a short incubation stage, with practically no prodromal symptoms, there starts a profuse greenish discharge, often mixed with blood, the entire penis is hot and swollen, the meatus is excoriated and everted, the prepuce is inflamed and becomes either phymotic or paraphymotic, the acid discharge corrodes the glans, which becomes balanitic, urination is excruciatingly painful, the act of urination being followed by a few drops of blood, there are painful erections and chordee, and there are almost nightly pollutions, which are also excruciatingly painful, the semen being mixed with pus and blood. Besides these local symptoms, the patient's general condition is decidedly affected.

There may be fever, there is a general feeling of malaise, headache, chilliness; there is loss of appetite and the sleep is disturbed. Whether due to the loss of appetite and sleep or to action of the gonorrheal toxin circulating in the blood, the patient may lose several pounds of flesh and become pronouncedly anemic in a very short time.

Strange to say, these violent, superacute cases, if serious complications have not set in, often end rapidly in perfect recoveries. How to account for it? I account for it by the fact that people having this kind of gonorrhea do not temporize and do not go about their business. Their intense suffering forces them to stay at home and to call in at once the aid of a competent physician.

SUBACUTE OR MILD GONORRHEAL URETHRITIS

The opposite of the picture presented by superacute urethritis is presented by this variety. A few days after intercourse the patient notices a little tickling or burning in the urethra, or these symptoms may be altogether absent. Then he notices a little discharge; it is slight in amount, and the act of urination causes him no trouble whatever; nor does he suffer from erections, chordee, etc. In fact he says that but for the slight discharge he would not know that there was anything the matter with him. These are the mild cases which the patient often neglects, with the result that they often terminate in chronic gonorrhea or gleet, or through some imprudence on the part of the patient—he does not think that he is sick enough to follow a strict régime—they become converted into the acute or even superacute variety.

The mild or subacute variety of gonorrhea is not fre-

quent—as a first attack. It is seen generally in people who have already had one or more attacks of gonorrhea. And it is sometimes difficult or impossible to determine whether we have to deal with a fresh infection or with an exacerbation of an old dormant *apparently* cured gonorrhea.

CHAPTER VI

TREATMENT OF ACUTE GONORRHEA

"Will you please describe briefly your method of treating gonorrhea?" I do not know how many times I received this request within the last ten years from physicians throughout the country, who knew or thought that I had more than average success in treating this disease. It is a perfectly legitimate and excusable frailty of the human mind to desire short cuts to knowledge and to successful practice. Alas, there are no short cuts, and the knowledge and experience acquired in twenty years' study and practice cannot be transmitted wholly in a brief article, chapter or even book, though suggestions can be offered which will help the student on the right road, so that he may also in due time become an expert.

I might make the paradoxical remark that the reason my method of treating gonorrhea is perhaps more than usually successful is because I have no method, or rather I have not one method, I have a hundred methods. No two cases of gonorrhea are exactly alike, and I know of no disease in which it is so necessary to mix brains with your medicines as it is in the treatment of gonorrheal urethritis.

And for this reason, because no two cases of gonorrhea are exactly alike, it is so difficult to outline briefly the

proper method of treatment. It is easy enough to do it provided you can be sure that the physician who follows it will use common sense and judgment, will watch the reaction produced by the treatment, diminishing or increasing the strength for instance of the various injections, prolonging or shortening the intervals of their administration, or suspending treatment altogether. Nevertheless it has to be done. There is a more or less average norm, and I will therefore proceed to describe the treatment of a case of average severity, reserving special remarks for the exceptionally acute cases on the one hand and the very mild cases on the other.

The treatment of gonorrhea is generally divided into general, internal and local, because all three lines of treatment are necessary for its successful treatment.

GENERAL MEASURES

The general measures may be expressed in the words "taking things easy." If the patient can afford it he should stay home, but under our present economic and social conditions there is hardly one man in a hundred who can stay home because he contracted gonorrhea. He would risk losing his job, his position, or he would "give away" his trouble to his parents or his wife, which is just as bad. So we have to do the best we can. We therefore tell him he should stand as little as possible, walk as little as possible, even ride as little as possible, and to recline as much as possible. He should be particularly careful about lifting things, as by doing so he may invite an epididymitis. That he should avoid dancing, horseback riding, bicycling,

goes without saying, but it is not so well known that railroad and automobile traveling may and often does exert a very injurious effect on an acute gonorrhea.

Sexual Rest. Sexual intercourse is to be strictly prohibited, and no exceptions are to be made to this rule. One might think that this is a point on which it is not necessary to spend any time, but those who think so do not know mankind as well as I do. I personally have seen many cases in my practice where the man did have sexual relations during the acute stage of an acute gonorrheal urethritis. Some did it just because they were vicious brutes, some did it because they were married men and were afraid to "give themselves away" to their wives. These latter used condoms. But whether with or without any preventives, intercourse in the acute stage of gonorrhea is pernicious, and all those patients had their cases aggravated, developing a posterior urethritis or a prostatitis, or both, where none existed before.

Diet. The diet should be moderate, and that is about all. I do not see the necessity of limiting the patient to a strict diet as some of our other urologists do. They may follow their usual diet, merely taking care to leave out all spices, condiments and salty or acid articles of food. Meat is not injurious, though it is better to eat of it sparingly.

Beverages. All alcoholics of whatever nature are strictly prohibited. I do not take any of the statements of our older writers for granted, but that alcoholics are injurious in an acute gonorrhea I have convinced myself many times. Coffee is also best cut out because it has an irritating effect on the sexual organs, but weak tea may be

drunk freely. The best thing to drink during an acute gonorrhea is milk, buttermilk, and plenty of plain water. Those who do not like plain water may drink a mild alkaline mineral water. Carbonated beverages, however, should be avoided, except in small quantities.

Smoking is perfectly permissible.

Among the other general measures it is only necessary to mention two: the patient's bowels and bath. The patient must see to it, or the doctor must see for him, that he does not get constipated. A constipated bowel has a bad effect on an acute gonorrhea. It has a bad effect for two reasons, both because it increases the general toxemia of the system, and because mechanically, by the feces pressing on the prostate and the patient straining during defecation, the inflammation is aggravated.

Hot baths are very useful, and they should be taken as sitz baths or hip baths. I am afraid of a gonorrheal patient taking a full bath. I always fear that some of the pus, minute as the amount may be, may be washed off the urethra and reach his eyes.

That the patient should wash his hands each time after touching his penis and that the danger of transmitting the pus from the urethra to the eyes should be thoroughly emphasized to him, also goes without saying.

It sometimes happens, however, that the physician, either because he is very busy, with an office full of patients waiting, or for other reasons, forgets to give the patient some very necessary, some vital instructions. It is therefore a good idea to have a printed leaflet which contains the necessary instructions, and to give it to each patient. It not only avoids the danger of forgetting, but it saves time.

For many years I have been in the habit of giving each patient with acute gonorrhea the following leaflet:

PERSONAL INSTRUCTIONS

AND SUGGESTIONS

WILLIAM J. ROBINSON, M.D.

12 Mount Morris Park West

NEW YORK

1. Uncomplicated gonorrhea is a comparatively mild disease, and can be quickly (3 to 6 weeks) and permanently cured.

2. The disease is, however, very apt to cause complications, and then it becomes one of the most difficult and tedious diseases to treat. The prostate, bladder, kidneys, joints, heart, may become infected. In fact, there is hardly an organ in the body which may not become infected with the germ of gonorrhea (gonococcus) or its poison (gonotoxin).

3. Do not believe in any stories of 3 and 5 day cures. If a gonorrhea was ever cured in three or five days, it wasn't a gonorrhea. It was probably a catarrh of the urethra.

4. The gonorrheal discharge or pus is *fearfully* contagious, and you must observe the most scrupulous cleanliness. Bringing the discharge in contact with your eyes may cost you your eyesight. After the slightest contact wash your fingers in the antiseptic solution I gave you.

5. Always urinate before injecting. If you are unable to urinate at a certain given time, then don't inject. Wait.

6. After urinating, and before injecting, wash the glans and the meatus with a piece of gauze or cotton dipped in the antiseptic solution.

7. Keep the syringe scrupulously clean. The tip should be kept in the antiseptic solution all the time.

8. If you follow the instructions that I gave you, you cannot inject too often. If you can inject every hour, do so. If you cannot inject so often, then inject as often as you can.

9. If I ordered for you two or three different injections, then it is preferable to get two or three syringes, keeping one for each injection.

10. If your case is an acute one, then you must cut off alcoholic

liquors of whatever character absolutely. Tea and coffee and carbonated waters are also best left off. Very weak cold tea is not injurious.

11. I have no objection to your smoking. Smoke as much as you want to.

12. Drink plenty of milk, water, flax-seed tea, etc. The oftener you urinate the better, for the urethral canal is flushed and the pus is not allowed to accumulate. But do not drink much after 7 P. M., as the distension of the bladder during the night with urine is apt to cause irritation and chordee.

13. Do not allow yourself to go constipated. If you are, say so, and a mild laxative will be given you.

14. Eat little and only mild, unseasoned foods. Avoid staying up late, and eat nothing for three or four hours before going to bed.

15. The last injection should be made after the last urination, immediately before going to bed. Do not sleep on your back; sleep on your side, preferably the right side.

16. Walk and stand as little as you possibly can. The semi-reclining position is the best. Bicycling, horseback riding, dancing, etc., are of course very injurious.

17. It should not be necessary to state that intercourse during an *acute* gonorrhea is criminal folly. Still I have found by experience that this admonition is not superfluous.

18. The cessation of the discharge does not necessarily signify that the disease has been radically cured. There may be no discharge whatsoever and still numerous gonococci may be lurking in the submucous tissue, in the little glands and follicles, in the prostate, etc., and may be awakened to renewed activity at the first intercourse or the first glass of beer. You are not cured until you have been pronounced cured by a competent authority; and this can only be done after two or three thorough examinations, with the aid of the microscope, complement test, etc.

19. Do not get married until permission has been given you by a competent authority, after a thorough, painstaking examination.

20. If your physician is not enjoying your fullest and most absolute confidence, change him, and the sooner you do it the better. It is unfair to yourself and to him to pursue treatment in a half-hearted manner.

INTERNAL TREATMENT

It is said that there are some urologists who pride themselves on treating acute gonorrhea without any internal medicine, particularly without the balsamics. May the good Lord forgive them. How any one who has ever noticed the remarkable, repeated and certain effect of a good oil of sandalwood in diminishing the dysuria, the pain and burning, and the discharge in an acute gonorrhea, can deliberately deprive himself of the adjuvant effect of this and similar agents, is beyond my comprehension.

The average human mind is narrow and loves to follow methods and systems: one must necessarily be an internist, the other a localist. Why not call into action the aid of all possible remedies and methods of treatment? So convinced am I of the value of internal treatment in acute gonorrhea that if I were limited in the treatment of this disease to either internal or local treatment I would choose the former. (It is just the opposite in subacute and chronic gonorrhea: there the local treatment is much more important than the internal; but this will be discussed in a future chapter.)

The first internal prescription I give has generally the following composition:

℞ Potassii citratis, ʒ ij
Potassii bromidi, ʒ ij
Liquor potassii hydroxidi, ʒ i
Ext. hyoscyami fl. ʒ i
Ext. tritici fl. ʒ vi
Aquae, q.s. ad, ℥ vi

Sig. Tablespoonful three or four times a day in, or followed by, half a glass of water.

Where the urine is excessively acid and there is strong ardor urinae this combination acts surely and well. It quickly neutralizes the acidity of the urine, the act of urination is made much less unpleasant, and the patient's subjective symptoms are decidedly improved. It also acts to a certain extent as a preventive of chordee. This prescription lasts three or four days, depending upon whether the patient takes it four or three times a day, and is as a rule not repeated.

Where the urine is not very acid I leave out the liquor potassii hydrox. and often I leave out the fluid extract of hyoscyamus and give instead tablets or granules of hyoscyamine 1-100 gr. three or four times a day, or atropine sulphate 1-150 gr. twice or three times a day.

I believe that this prescription, given at the beginning of the acute stage of the disease, has a definitely beneficial effect in limiting the inflammation. When the patient is through with this prescription I begin the administration of what we call the balsamics. The balsamics most commonly in use are oil of sandalwood, copaiba and cubebs, which latter may be administered in the form of the powdered cubebs or the fluid extract of cubebs or the oil of cubebs or, which is the best preparation, oleoresin of cubebs. Personally, however, I have completely discarded copaiba and cubebs in my private practice (we still have to prescribe copaiba to dispensary patients) and have limited myself exclusively to oil of sandalwood and its combinations or derivatives.

I prescribe them only in capsule form; it seems to me an unnecessary cruelty to the patient to give him sandalwood either on sugar or in water or in the emulsion form. I generally prescribe two 5 minim capsules three to four times a day, the patient thus taking thirty or forty minims a day. I either give no sandalwood at all or if I give it, I give it in what I consider efficient doses. To youthful or very delicate persons five minims four times a day is often sufficient.

Many patients have no trouble whatever in taking oil of sandalwood, and these patients need no other internal treatment. Many patients, however, cannot take it for two reasons: either it upsets their stomach, causing belching, anorexia, or it causes pain across the kidneys. Sometimes the pain may be quite acute. To such patients we must give some of the various combinations and derivatives of oil of sandalwood. I frequently prescribe gonosan, santyl, lactosantal, thyresol, and arrheol. The dose of all of them varies from one to two capsules three to four times a day. Thyresol may also be given in tablet form. Arrheol may be given in doses of from eight to twelve capsules a day. Where pain in the urethral canal and at the neck of the bladder is a prominent symptom gonosan acts best, because it possesses, besides its antiblenorrhagic effects due to the santal oil, distinctly anodyne effects due to the kava-kava.

That is all the medicine the patient takes for his gonorrhea as such. This is continued throughout the course of the disease, with the difference that after the third week, when the discharge has greatly diminished, only two or three five minim capsules are taken pro die.

Special symptoms, such as chordee, balanitis, etc., require special treatment, which is considered under the appropriate heading.

I do not give hexamethylenamine as a routine drug in gonorrhea. I could not convince myself that it had any beneficial effect. Sometimes it aggravates the condition by making the urination more painful. Where there is a mixed infection, however, there it is given invariably, but then we must see to it that the urine is not alkaline, for hexamethylenamine (urotropin) acts but feebly or not at all in an alkaline medium. In such cases I usually prescribe it in conjunction with sodium benzoate, which acidifies the urine or with the recently introduced sodium acid phosphate, NaH_2PO_4, whose action is still more certain in this respect. This salt is not the official sodium phosphate, which is chemically the disodic hydrogen phosphate, Na_2HPO_4, and which is used as a cholagogue and laxative. The salt I am referring to is given in doses of ten to 30 grains three times a day. It may be given in the form of tablets containing both hexamethylenamine and the monosodic acid phosphate—five grains of the former and ten to fifteen grains of the latter.

Hexamethylenaminae, gr. v
Sodii benzoatis, gr. x
Mf. pulv. No. i
Tales doses, No. xij

S. One powder in a glass of water three to four times a day.

Hexamethylenaminae, gr. vij ss
Sodii (mono) acidi phosphatis, gr. xv

M.f. tabella, No. i
Tales doses No. xxx
S. One in a glass of water three to four times a day.

Methylene blue is a peculiar drug, and though it has been used for many years in the treatment of gonorrhea it is still impossible to define its status. In some cases it seems to act nicely, in a large number not at all. Occasionally when the patient becomes intolerant of santal oil preparations it is necessary to make a change, and then I prescribe it. It should never be prescribed alone, but always with some extract of belladonna and a small amount of cinnamon; nutmeg is not advisable in the acute stages:

Methylthioninae hydrochlor., gr. ij
Phenyl salicylatis, gr. iij
Extr. belladonnae, gr. 1-6
Pulv. cinnamomi, gr. ss
M.f. capsula No. i
Tales doses No. xxx
S. One capsule three to four times a day.

LOCAL TREATMENT

The injection treatment of gonorrhea is still a mooted question. It is a genuine bête noire. Many physicians even nowadays are afraid of it. There is no effect without a cause, and there is a cause for the suspicious and timid attitude of the profession towards the injection treatment. The fear, which is in many instances a wholesome fear, is due to the fact that injections, if given in the superacute stage of gonorrhea, or if administered bunglingly and forcibly, or if too strong in themselves or in too strong

a concentration, are apt to do a great deal of damage. Very many strictures were undoubtedly caused by the too powerful injections used by our forefathers. Even at this late day we not rarely see cases in which an injection administered by the patient himself, or even occasionally by the physician, has caused an almost immediate extension of the inflammation to the posterior urethra, or severe strangury with retention of urine, or hemorrhage, or epididymitis, or prostatitis. And when one deals with patients of a low degree of intelligence who cannot be taught not only how to be aseptic but even how to be ordinarily clean, it is best to leave out injections altogether; and the physician who has not or does not want to take the requisite time and the required gentleness for the trifling but important process of washing out and injecting the urethra should also leave injections alone. It will not be the best kind of treatment, but *no* injections are better than carelessly or imperfectly administered injections. So, as said, there is a real reason for the fear of injections.

But, as we have said many times before, the improper use or abuse of a measure does not militate against its proper use. And the conscientious and careful practitioner need have no hesitation in resorting to the treatment of gonorrhea by injections. I begin to use them with the patient's very first visit. The only class of cases I do not use them in is in the superacute cases, but this is really not necessary to mention, because it will be mentioned later on, and it is the cases of moderate severity that I am discussing here—this should all the time be borne in mind.

The drugs used for injection are certainly very numerous, as is readily seen by referring to the section on drugs.

While it is good to have a large number to select from, for very frequently a case which will not yield to one drug will yield to another, still in the majority of cases we limit ourselves to a small number of drugs, and it is to these only that we will refer in this chapter.

The injections may be divided into three classes: cleansing, antigonococcal and astringent.

While these injections may be used interchangeably during one and the same period, still, as a rule, each class is indicated for a different stage of the disease. When a patient comes in a superacute condition, with the discharge, so to say, bursting forth, and the penis red, swollen and painful, then I use only the cleansing injections. But this stage under proper management never lasts longer than two or three days, and then the time comes for the antigonococcal or gonocide or antiseptic injections. Many patients never have that very acute stage; that is, even a first or acute gonorrhea may start in and proceed with only moderate symptoms. In such cases the cleansing injections are left out and the gonocide injections are commenced forthwith. The astringent injections are reserved for the last or declining stage, when there is but a drop or so of discharge and gonococci are either entirely absent or very scant.

The most eligible cleansing solutions are a one per cent. solution of borax or sodium bicarbonate or 1-10th per cent. solution of sodium chloride. Boric acid is not very good for the purpose, for mild as it is, it is still nevertheless irritating, occasionally.

It is best to prescribe those solutions double the strength that it is intended the patient should use and direct him

to dilute them half and half with boiling water. For it is important the patient should use the solution hot. If he can use it of a temperature of 45° C. (113° F.) he will kill two birds at one shot, because the above temperature is fatal to the gonococcus. But in the superacute stage of which we are speaking now, some patients are very sensitive to heat and cannot stand a higher temperature than 90 or 100° F. A higher temperature is not only painful but occasionally increases the inflammation.

We must always remember the purpose of these injections: they are merely cleansing and, unlike injections of class two and three, they are not to be held in the urethra. They are injected and allowed to run right out. Of course, as with all injections, the patient must be instructed always to urinate before using the injection. If he cannot urinate at a given time, then he is to delay the injection until he can.

I. FORMULAS OF CLEANSING INJECTIONS:

1. Sodii bicarbonatis, gr. cl
   Aquae destill. steriliz., 0j

Mix with equal volume of hot water and inject two or three syringefuls *every* hour or two. (If you cannot do it so often, do it as often as you can.)

2. Sodii boratis, gr. cl.
   Aquae destill. steriliz., 0j

Directions same as with injection No. 1.

3. Sodii chloridi c. p., gr. xxx
   Aquae destill. steriliz., 0ij

Directions same as with No. 1.

Some use a normal salt solution (0.7 to 0.9 per cent.). I don't consider it necessary to use the solution so strong.

We now come to the formulas for the gonocide solutions. There is but little limit to the frequency of the injections. If one would use the injections regularly every hour or two, his urethritis would certainly be cured in a very short time. These injections are to be held in as long as possible—fifteen minutes (if the patient has the patience and perseverance), ten minutes, or at least five minutes. If the patient (after urinating, of course) takes the injection in the recumbent or semi-recumbent position, he will have less difficulty in retaining the solution as long as may be necessary.

The antiseptics that have been recommended as gonocides are many. The principal ones are mercuric chloride (corrosive sublimate), potassium permanganate, hydrogen peroxide, thalline sulphate, ichthyol and silver salts. Mercuric chloride is mentioned here only to be condemned in the most emphatic terms. It is a drug that works mischief with the urethral canal. The urethral mucosa is an exceedingly delicate membrane and must be dealt with gently. We must kill the gonococci, but we must not destroy the mucous membrane. I am satisfied that many cases of stricture, urethral erosion and other complications can be laid at the door of corrosive sublimate. Potassium permanganate is not one of my prime favorites. If used in strength to be efficient it is too irritating. Not that we cannot cure a gonorrhea with it alone, but there are better drugs, and in medicine the best is none too good. Still in some cases it seems to be superior to any drug in or out of the pharmacopeia.

Hydrogen peroxide is of little value as a gonocide. When I do use it, it is in very dilute solution as a cleansing agent, merely preliminary to the gonocide injection. Thalline sulphate is a well tried gonocide and I use it frequently. Ichthyol I use in obstinate cases of a gleety character. But the gonocide drugs par excellence are the silver compounds.

The best known of silver compounds is silver nitrate. I use it very extensively in chronic urethritis, but to use it in acute gonorrhea would be folly. It not only increases the pain and the discomfort (often producing retention, strangury, blood in the urine, etc.) but actually aggravates the disease. For the silver nitrate increases the discharge, and the more abundant the discharge the better the gonococci like it; this is their pabulum and they multiply in it much more rapidly than in a urethra with but a scanty discharge. For this reason my endeavor from the first minute I get the patient is to reduce the amount of discharge in the urethra to a minimum; not by the aid of drying astringents, but by mechanical means; by frequently flushing the urethra with the syringe and by making the patient take lots of liquid, so that he is obliged to urinate very often and thus wash his urethra from within. And so nitrate of silver in acute gonorrheal urethritis is out of the question. Silver iodide, recently recommended, is of little or no value. Silver fluoride is irritating.

In short, the inorganic preparations of silver are not well suited for the treatment of acute gonorrhea. We must have recourse to the organic compounds. Here we are confronted with an *embarras des richesses.* We have protargol, argyrol, argonin, argentamine, argentose, argentol,

nargol, largin, picratol, silberol, ichtrargan, albargin, etc., etc. While I have given every one of them a pretty thorough trial, I shall not go into a consideration of the advantages and disadvantages of every one of them. I will simply state that practically I have limited myself to the first mentioned, namely protargol and argyrol. And while argentamine, argonin and albargin are used abroad considerably, in this country the above two compounds are the only ones in general use.

Argyrol is an excellent silver compound and is the least irritating of all silver compounds. And in very irritable or sensitive urethras that is the silver compound of choice. Protargol, however, seems to be more penetrating and on the whole is more effective. An excellent way is to use, as I have been doing for some time, the two salts alternately. That is, I will prescribe one bottle of protargol solution and one of argyrol and tell the patient to use the protargol one day and argyrol the next day, or to change with each injection. Under these injections the secretion diminishes, the inflammation subsides and the gonococci disappear rapidly.

II. FORMULAS FOR GONOCIDE SOLUTIONS

4. Protargol, 0.5
   Aquae destill., 200.0
   M. Ft. solutio lege artis. Detur in vitro nigro.

Sig. Use one syringeful at a time (two to four drams, depending on the capacity of the man's anterior urethra, which I always measure) and hold in five to ten minutes.

You must be sure that the solution of protargol is prop-

erly prepared. Improperly prepared it contains lumps and will prove irritating. The best way to make a solution of protargol is to pour the water into a wide graduate or a mortar, and then throw, with a sifting motion, the protargol on the water; it is light and floats. Leave it without shaking or stirring; in a few minutes it will be found to have become dissolved. As seen, I commence with a ¼ per cent. solution (1:400). The amount may be raised to one or two per cent., but I seldom go beyond one per cent.

5. Argyrol, 10.0—20.0—50.0
   Aquae destill., 200.0

Use the same way as the protargol solution.

6. Thalline sulph., 1.0
   Aquae destill., 200.0

This is a one-half per cent. solution; the strength may be raised to two per cent., but one per cent. is generally the most satisfactory.

7. Ichthyol, 4.0 to 6.0
   Aquae destill., 200.0

This, as stated previously, is used only in "dragging" cases and is good as an alternate injection.

When the discharge has become thin, serous and scanty, when the gonococci are practically absent, then it is, as a rule, advisable to finish up with an astringent injection. For this purpose we may use one of the following injections.

III. FORMULAS FOR ASTRINGENT INJECTIONS

8. Zinci sulphatis, gr. viij
   Aquae destill., ℥ iv

Inject three or four times a day.

9. Zinci sulphatis, gr. viij
   Plumbi acetatis, gr. viij
   Aquae destill., ℥ iv

Shake well. Inject three or four times a day.

10. Zinci sulphocarbolatis, gr. xvj
    Aquae destill., ℥ iv

11. Zinci sulphatis
    Plumbi acetatis, āā gr. viij
    Tr. opii, ℥ j
    Tr. catechu, ℥ ij
    Aquae ad, ℥ iv

The following, however, is my favorite:

12. Zinci sulphatis, gr. viij
    Bismuthi subcarbon (vel subnitr.), ℥ iij
    Bismuthi subgall., ℥ j
    Hydrastis aquos, ℥ j
    Pulv. acaciae, ℥ jss
    Aquae ad ℥ iv
    M. f. mistura lege artis.

Keep bottle flat and shake well before using.

This leaves a protecting coating over the urethral canal, exerting a soothing and healing influence. The coating

remains in the urethra until the next urination. This injection finishes up the treatment.

[If prepared by a competent pharmacist this prescription makes a smooth homogeneous mixture, like an emulsion. Prepared by an incompetent pharmacist, it is lumpy, gritty, and often proves irritating to the urethra.]

CHAPTER VII

CASE REPORTS

Before going further, I will present two typical cases of acute gonorrhea—first attacks—the method of actual treatment pursued, and the difference in the results obtained, on account of a slight misstep on the part of one patient.

A. A., age 26, made a night of it on December 1st. He had a big dinner, drank a good deal of wine, and had intercourse four or five times. In short he did comply with all the requirements which Ricord gave as necessary in order to be certain to get a gonorrhea. The woman apparently supplied the gonococcus. On December 4th he felt a tickling in the meatus, towards evening of the same day he felt considerable burning in the urethral canal, and the meatus became puffy. On the morning of the 5th he woke up early with a painful erection and some discharge. Urination was scalding and painful. During the day the discharge gradually increased and urination became more and more painful. He was sure that the woman, a respectable young widow, was clean and healthy, and therefore he could not have anything serious. He thought it was all due to a strain. He bathed his penis in hot water, which relieved him temporarily. The following day things kept on going from bad to worse, and on December 7th he came to consult me. He had never had any venereal trouble, in fact prior to that night he had had no inter-

course for six months—having been away to Mexico and having a wholesome fear of the tropical women; and this was his first attack.

Status præsens. The meatus puffy, the glans swollen, the entire penis very hot, the prepuce swollen and edematous, though retractable, and a large amount of greenish pus pouring out of the meatus. A little tenderness in the right groin, showing beginning involvement of the inguinal glands. I tell him to urinate, and the urine comes out slowly and in a very thin stream, showing great congestion of the urethral canal. Urination exceedingly painful, and he grits his teeth during the process. The last few drops of urine look as if they were tinged with blood. He passed altogether about six ounces of urine, in three separate glasses, and each portion is a little turbid, though the last only slightly so. The urine is very dark in color and very acid. Though no microscopic examination was necessary —the diagnosis was perfectly plain without it—still one was made, and it showed the presence of numerous extra- and intracellular gonococci.

To think of attempting to abort a case like this would have been absurd. Nor did I think it advisable to use any injections at that stage. Antiseptic or "gonocide" injections would have proved irritating, and all that could be accomplished by cleansing injections could as well be accomplished by washings from within—by the frequent passing of a bland, diluted urine.

I gave him the following mixture:

℞ Potassii citratis, ʒ ij
Sodii bromidi, ʒ iij

Liq. potassae, ʒ i
Ext. hyoscyami. fl., ʒ i
Aquae menthae pip. q.s.ad ℥ vj
Sig. ℥ ss in water four times a day.

Besides this I gave him arbutin pills, one gr. each, one to be swallowed every hour, followed by half a glass of water. I also told him to dip the penis in hot water every two hours for about five minutes at a time, and to wrap the organ in gauze saturated with aluminium acetate solution. For the threatening swelling in the groin I gave him the following ointment:

℞ Ung. hydrargyri, ʒ ij
Guaiacol, ʒ ss
Adipis, ʒ vi
M. ft. unguentum
Sig. Apply three times a day covering with gauze.

The improvement was immediate as far as the ardor urinae was concerned. The erections were also considerably improved, but in the night he was awakened by a very painful chordee. When he came next morning the swelling of the prepuce was all gone, and the meatus was less puffy and glazed. The discharge was abundant, the urine was light in color. I made no change in the treatment—told him to keep on doing the same thing until the following morning. I gave him a suppository containing 1-3 grain of morphine sulphate and 1-120 grain of atropine sulphate, to be inserted at night in case there were during the day any indications of painful erections. He did get a painful erection towards evening and he inserted the sup-

pository and he slept through the night in perfect comfort.

When he came the following morning his condition had undergone still further improvement. The amount of pus was less, and so was the burning and the pain on urination. I then gave him an anterior injection of a ½ per cent. solution of protargol, and prescribed eight ounces of a ¼ per cent. solution of the same silver compound, to be used regularly every three hours throughout the day and twice or once during the night, the injection to be retained three to five minutes each time. I also prescribed five minim capsules of oil of sandalwood, to be taken four times a day. He came every day to the office, and every day I used either a protargol (½ per cent.) or a potassium permanganate (1-2000) injection, but at home he used the protargol solution exclusively. He complained once or twice of burning and irritation caused by the injection, but as the discharge and the gonococci kept on diminishing in amount, and the other symptoms kept on improving, I did not consider it necessary to make any change. On the eleventh day of treatment the discharge was reduced to a very small drop in the morning, and the gonococci were scanty. He continued the injections for four days more, without any change in the morning drop. I then gave him an injection of zinc sulphate and bismuth subnitrate (see Formulas and Prescriptions), which he used three times a day. After three days of this injection the drop disappeared. I told him to discontinue all treatment for three days and come for examination. He came early in the morning, with the night's urine in the bladder. I examined him and pronounced him cured. For there was not a trace of discharge, the meatus was perfectly normal, and

the urine was free from any traces of shreds. I expressed his prostate, and the secretion was free from any gonococci. He came around every third day for examination. I told him to resume his normal course of living. He drank some wine, and three weeks after I pronounced him cured he had intercourse, but no symptoms made their appearance and the urine remained perfectly clear.

Here we have a severe case of acute first gonorrhea *cured* in eighteen days. The patient was anxious and could afford to be treated properly. He could devote and did devote all the time that was necessary. Not all patients can do that. Through neglect, insufficient or improper treatment, the inflammation extends into the posterior urethra or the prostate, and then it becomes a matter of weeks or months instead of days. In this case, it will be noticed, the inflammation at no time passed beyond the anterior urethra.

Case A. B. was very similar to A. A. in its history, initial symptoms and course of the disease. Though he could not attend to himself so carefully, he was getting along nicely; but on the ninth day of treatment he had to walk about a good deal on business, and in the evening he "had" to go to theater with some prospective buyers; he also had to treat them to supper, and "had" to drink with them different cocktails and wine. On the next day all his symptoms were aggravated, and the second portion of the urine contained pus and shreds; in short he developed an acute posterior urethritis. I began to use instillations of 0.5 per cent. solution of protargol daily, but the protargol proved irritating. I diminished the strength to 0.25 per cent., and it still proved irritating. I then changed to ten per cent. ar-

gyrol, using two c.c. at each instillation. After ten days very little progress was made and I changed to albargin. Then I changed back to protargol. It took fifty-six days of treatment before I could pronounce the patient cured. An unwise step on the part of the patient, a step forced by economic conditions, cost him several weeks of extra suffering.

CHAPTER VIII

COMMON BACTERIAL URETHRITIS

While common bacterial urethritis is not as frequent nor as important as is gonococcal urethritis, still it is frequent and important enough to deserve special consideration and be borne in mind by the physician. The physician who will consider every case of urethral discharge as gonorrhea will be correct in his guess eight or nine times out of ten; but in the other ten or twenty per cent. he will blunder, cause the patient undue anxiety, prolong the course of the disease unnecessarily, throw unjust suspicions in many cases; in other words, be untrue to his function as physician. One of the first things for a physician to do when a patient with a urethral discharge applies for treatment is to determine the character of the discharge: is it gonococcal or not? Only after this point has been settled, may the physician proceed with treatment.

In the vast majority of cases the differential diagnosis is not difficult. While exceptions do occur, still as a rule simple bacterial infections of the urethra are milder in their entire course; the urinary symptoms are almost entirely absent: there is no scalding or burning on urination, no strangury, no increased frequency. The discharge may be quite abundant, but it is not yellow or greenish, but almost a pure white; the glans is not swollen, the lips are not everted and puffy, nor eroded. The microscopic ex-

amination usually settles the diagnosis: we find in the field numerous bacteria of various sorts, bacilli, cocci, pneumococci, bacillus coli, streptococci, but no gonococci.

The causes of common bacterial urethritis are many. One of the commonest is intercourse with a woman who is the subject of a bad leucorrhea. And some intact virgins may have the worse kinds of leucorrhea; worse than other women, for the latter have recourse to douches, which are avoided by the former for fear of rupturing the hymen. Relations during or immediately after the menstrual period is another cause. A temporary alteration in the reaction or chemical constitution of the vaginal secretion is an undoubted cause. I have had a case of a man under treatment who would always get a urethritis when he would have relations with his wife when she was tired from shopping and traveling, or worried or annoyed. At no other time would he get any trouble; the wife was absolutely free from any leucorrhea or any other vaginal or uterine discharge. Relations with a woman suffering with an abscess, erosion of the cervix, or carcinoma may give rise to an obstinate urethritis. Another cause of bacterial urethritis is auto-infection. In men with long prepuces, where smegma is allowed to accumulate, and a balanitis or a phimosis results, the bacteria sometimes wander into the urethra and set up an inflammation with discharge. Another cause, a cause which fortunately is becoming less and less frequent as the medical profession and the laity are learning the theory and practice of asepsis and antisepsis, is infection carried into the urethra with a sound or bougie.

It is important to bear in mind that a bacterial urethritis is often implanted upon a urethral mucous membrane that

had been once the host of the gonococci, but is now entirely free from them. That a man with a gonorrhea may get an additional infection we know; but it is necessary to bear in mind that the urethra that was once the subject of a gonorrheal inflammation forever remains a *locus resistentiae minoris* and is more vulnerable to infection than an intact urethra. Let us assume that A has had gonorrhea for two or three years. By persistent and scientific treatment he is cured in the real sense of the word. Urethroscopically the mucous membrane is normal, the severest tests fail to bring out any gonococci, though they may bring out a non-bacterial, aseptic discharge. The man is given permission to marry. The young intact wife has some leucorrhea—she has never used any vaginal douche—there is excessive indulgence and the result is that the husband develops a urethral discharge. He is frightened to death; he thinks his gonorrhea was not properly cured, that he has a relapse and that he has infected his wife. But a careful examination shows a few common bacteria and no gonococci. Three or four injections stop the discharge, the wife is ordered a vaginal douche, and no further complaints are heard from those quarters. It is well to bear in mind that we may have an unadulterated gonorrheal infection, a mixed infection (gonococci plus other bacteria) and a common bacterial infection implanted upon a previously gonorrheal or healthy urethra.

The prognosis in simple bacterial urethritis is good; and its course is usually short, though if not treated or wrongly treated it may become chronic and extremely obstinate. If neglected it may also give rise to epididymitis, prostatitis and vesiculitis, and these complications may even be more

resistant to treatment than when occurring as complications of gonorrhea.

The treatment is simple and consists in the use of injections of mild antiseptics; potassium permanganate, 1-3000, silver nitrate 1-5000, mercuric chloride 1-15,000, mercuric oxycyanide 1-5000, chinosol 1-1000. Sometimes the discharge disappears completely—and all the other slight symptoms with it—after three or four injections, and it is such cases that establish some physician's reputation as a great specialist, and give rise to the popular idea that gonorrhea can be cured in three days.

In addition to the injections, a mild alkaline diuretic may be administered.

CHAPTER IX

CHANCROIDAL URETHRITIS

This term is applied to an inflammation and discharge caused by chancroids within the urethra. The correct term is of course urethral chancroids, but I deliberately use the term chancroidal urethritis to impress it upon the physician's mind that a discharge from the urethra may be something else than a gonorrhea. While mistaking a simple bacterial urethritis for gonorrhea may not have any dire results, overlooking a chancroid or chancre within the urethra may have disastrous results for both patient and physician. The physician should always *palpate* the urethra; that alone will sometimes give a hint of the true condition of affairs. Then the pain, whether spontaneous, on pressure, or on urinating, is generally localized in the anterior urethra; the discharge, whether profuse or scanty, is generally mixed with blood. And on microscopic examination no gonococci are found. The Ducrey bacillus is not easily identified in the pus from urethral chancroids. Buboes are apt to complicate both gonorrhea and chancroid, and as both gonorrheal and chancroidal buboes are inflammatory in character and painful, this complication is of little value as a diagnostic sign; except when we puncture the bubo and the pus shows the presence of the bacillus of Ducrey. I am strongly opposed to going into an acutely inflamed urethra with a urethroscope, but in exceptional

cases, where it is necessary as an aid to diagnosis, it is permissible, especially as chancroids are usually situated within the first inch of the urethra.

The treatment of urethral chancroids consists in irrigating the anterior urethra with normal saline solution, with 1 to 10,000 bichloride, or with 1 to 1000 chinosol solution. After three or four days of this treatment, instillation of iodoform oil (1 part of iodoform in 20 parts of sterilized olive oil) 10 to 20 drops three times a day, or the insertion of thin and oblong (suppositoria urethralia) iodoform suppositories should be resorted to:

Iodoformi, gr. ij
Ol. theobromae, gr. xij
M. f. Suppos. No. 1. Tal. dos. No. xij
Sig. One t. i. d.

Chancroids within the urethra are sometimes very resistant to treatment, as we cannot use any very radical measures; we cannot cauterize them, as we can external chancroids.

After the chancroids have healed it is sometimes necessary to proceed with prolonged and systematic dilatation of the urethra, so as to prevent the formation of a stricture, or to stretch it if one has formed.

CHAPTER X

SYPHILITIC OR CHANCRE URETHRITIS

That a chancre can be situated within the meatus or further in the urethra, giving rise to discharge, etc., is well known, but nevertheless this is frequently overlooked by the physician, who, as we said before, is too apt to regard every kind of urethritis as gonorrheal. If the possibility of a chancre within the urethra is only borne in mind, the diagnosis is not difficult. The important points are the following. On palpation a slight induration or an indurated mass is felt in the meatus or further back in the urethra. The size of the stream is diminished, sometimes extremely so, the lumen may be almost obliterated; but the pain is slight. The discharge is usually scanty, and on microscopic examination shows the absence of gonococci but the presence of many blood cells. Inguinal adenitis, if present, is indolent, painless, non-inflammatory. Of course the appearance of secondaries or a positive Wassermann settles the diagnosis, but their corroborative testimony is needed only in very exceptional cases. As a rule we can make the diagnosis without them.

The treatment of chancre urethritis or urethral chancre is that of syphilis in general. The location of the initial lesion is of little significance. The use of salvarsan, and of mercury intramuscularly, by inunction or by mouth will result in the disappearance of the chancre. But the heal-

ing process may be expedited by introducing into the urethra suppositories containing small doses of mercury, the most advantageous being mercurial ointment:

Unguenti hydrargyri, gr. i (0.06)
Ol. theobromae, gr. x (0.6)
M. f. Suppos. urethr. No. 1. Tal. dos. xxx
Sig. One bis vel ter in die.

Instead of using cacao butter alone as a base, the pharmacist may be instructed to add two or three grains of yellow wax to each suppository, so that the prescription would read:

Unguenti hydrargyri, gr. 1 (0.06)
Cerae flavae, gr. ij (0.12)
Ol. theobromae, gr. x (0.6)
M. f. Suppos. urethr. No. 1. Tal. Dos. xxx

As the object of this book, as of all my other books, is distinctly utilitarian, my purpose being not only to teach but to impress the teachings upon the physician's memory, I will report here a case of urethral chancre which was mistaken and treated for gonorrhea, and which will perhaps be of service in preventing similar mistakes in the future.

X. X., thirty-five years old, druggist by profession, single, has been leading a rather loose life, indulging excessively and promiscuously. Had his first gonorrhea at the age of seventeen, and since then has had more relapses or fresh attacks than he can remember—probably fifteen or twenty. However, he has ceased to pay much attention to them, as he had learned to "cure" his gonorrhea quickly,

without any physician's aid. At the first appearance of a discharge he would take some santal oil capsules, use an injection of potassium permanganate, "finish up" with zinc sulphate—and in two or three weeks he would be well. Only in the more obstinate attacks he would consult one or another of the physician friends who were in the habit of visiting his drug store.

On January 13 he began to notice some difficulty in urination; he felt as if the stream had to pass some obstacle. Two or three days later there was also some burning on urination, which sensation gradually increased. A rather profuse discharge also made its appearance. He at once began to use potassium permanganate injections, and though the injection was very painful he persisted. There was no diminution in the discharge; large doses of oil of santal, however, diminished the *ardor urinae,* and made the act of micturition tolerable. He also tried copaiba and cubebs. In about two weeks he consulted one of his general practitioner friends, who looked at his urethra and advised him an argyrol injection. The result was nil, and he consulted another physician. For six weeks he kept on using different antiblenorrhagics and injections for his gonorrhea, but the condition was not only not improving, it was geting worse. His urinary stream was getting smaller and smaller. He consulted another physician, who attempted to pass a sound, which attempt caused severe pain and hemorrhage, declared he had a stricture and dismissed him. The patient then consulted me. I listened to his history, looked at his body, felt his urethra, his axillary, inguinal and cubital glands, and told him that it was not gonorrhea that he needed treatment for, but syphilis. He might or

might not also be suffering from a gonorrheal urethritis, but about his being the victim of syphilis in an active stage, perhaps in a virulent form, there could be no question. The rash on the body was unmistakable. I called his attention to it, and asked him if this did not make him or his physicians suspicious. No, he always suffered from pimples (acne); he did speak about it to one of the doctors, but the doctor said that the eruption was probably due to the copaiba, cubebs and santal oil that he was taking.

He naturally objected to the diagnosis of syphilis, and truculently asked if it was not possible that I was mistaken. I told him that I was not in the habit of declaring emphatically that a patient was suffering with syphilis unless the diagnosis was absolutely certain; if there was one chance in a hundred of a mistake, I would say: probably syphilis. But in his case there was no room for doubt. Further examination disclosed extensive condylomata lata and acuminata (which the patient had taken for piles), and numberless mucous patches in the mouth, in the pharynx and on the tonsils. He was aware, he said, that his throat was sore, but as he had frequently suffered, in the winter particularly, from sore throat, he paid no attention to it. The patient was an excessive smoker, and not knowing the nature of his trouble he went on smoking in spite of his mucous patches. The axillary glands were considerably enlarged, but the inguinal glands were only slightly swollen. The lack of inguinal adenopathy is a phenomenon which we observe not infrequently in chancre situated *within* the urethra.

I told the patient that he was a danger to everybody he

came in contact with, to every customer, to his relatives, to the community at large, and that he must at once subject himself to vigorous and persistent treatment; his uvula was ulcerated and was in danger of dropping off unless vigorous treatment was instituted immediately. Even after these emphatic declarations the patient was not quite convinced. The mind refuses as long as possible to believe things which are painful. He asked me if I would not take a Wassermann test, just to make sure. I said emphatically, no. To make a Wassermann would mean that I was not absolutely certain of my diagnosis, and this was not the case in his instance. He went to another physician who had a Wassermann made, and only when the result came as positive (+ + + +) did he come for treatment. And he was a very meek patient then. His uvula had in the meantime ulcerated through on one side, and as it interfered with his speech and swallowing I clipped it off.

I started at once active treatment. Gave him a full dose of salvarsan, followed by injections of mercury every other day. There seemed to be indications of softening of the hard palate, and as I feared ulceration I gave the mercury (salicylate, oxycyanide and salicyl-arsinate; I believe that in desperate cases we get better results by frequently changing the salt of mercury) in maximum doses. The throat and mouth were sprayed with a 1-5000 mercuric chloride solution, and, besides, antiseptic formaldehyde-generating tablets were ordered to be slowly dissolved every hour. For the condylomata a powder of equal parts of resorcinol and calomel was prescribed (a remarkably efficient application to all venereal warts):

℞ Resorcinol,
Hydrarg. chlor. mitis, ãã 3 ij
M. f. pulvis subtilis
Sig. Apply externally.

For the urethra I ordered bougies of unguentum hydrargyri (0.05) and oleum theobromatis (0.8):

℞ Unguenti Hydrargyri U. S. P., 0.05
Ol. Theobromatis, 0.8
M. ft. suppos. urethrale No. I
Tales doses No. XII
Sig. Insert one t. i. d.

The effect of the treatment was immediate. I have often said, if the results of treatment were as prompt, as positive, as clearly apparent in other diseases as they are in syphilis we would have no therapeutic nihilists, the anti-drug quacks would not be deluding the ignorant and non-critical public with their false and sophistical statements, and doctors would not form the subject of satire in humorous and would-be humorous magazines.

The patient is of course still under treatment, but his Wassermann taken every month shows +, —, or + —.

I repeat the fact that a chancre may occur within the urethra should be strongly impressed on the physician's mind. It would save him humiliating and dangerous errors, it would save the patient valuable time. One month saved in the beginning means the saving of a year afterwards.

Tubercular and Neoplastic Urethritis need merely be

mentioned. They are very rare, but it is well that the physician should know of their existence, for they are sometimes the expression of a lesion higher up in the genito-urinary tract.

CHAPTER XI

CHEMICAL URETHRITIS

The cases of chemical urethritis are numerous and well authenticated. And with the growing tendency to self-medication, to injecting strong chemicals for the purpose of curing and preventing gonorrhea, they are becoming more and more frequent. I have reported four unmistakable cases of chemical urethritis—three in the *Medical Record* and one in *The Critic and Guide*. As I consider chemical urethritis of great importance, too often overlooked or neglected by the physician, I will devote a little more space to it than to the other varieties of non-gonorrheal urethritis. The cases reported by me were as follows:

Case I. Mr. X., 28 years old, was to be married on September 21, 1910. Just a week before, September 14, he considered it necessary to cohabit with a prostitute. Men of a certain class seem to regard it a sacred obligation to bid adieu to their bachelorhood in this dastardly manner. The temptation is very great to break out in a tirade against the brutes, who, a few days, sometimes even a few hours, before going to the marriage bed, will subject themselves and their future wives and children to the risk of infection, because, forsooth, after marriage they intend to be faithful to their wives and therefore want to have a "last fling." But what's the use? The brutes don't read medical literature, and if they do they are not affected by our

tirades. And so Mr. X. had intercourse on the 14th. On the 16th he noticed, or thought he noticed, a tickling in the urethra. After a few hours the tickling disappeared. On the 17th he thought it returned. In view of the close approach of the important day he became thoroughly frightened—though I believe there was nothing the matter with him, the tickling being more in his mind than in his urethra—and consulted—a reputable specialist? No; a druggist. This druggist seems to have been particularly ignorant. His advice to the patient was to dissolve one antiseptic tablet (containing 7.7 grains of corrosive sublimate!) in *about* half a glass of water and syringe three times a day, using several injections for each seance.

The patient did as told and syringed out his urethra four or five times with a half-ounce syringe. This was before going to bed. He suffered agonies the whole night, and the pain at any attempt at urination was so severe that he abstained. The following morning he applied to me. The penis was four or five times its normal size. The swelling and edema were enormous. The glans was so puffed that it was difficult to find the meatus. The patient was badly frightened, but constitutionally he was not ill, no fever, no malaise, no stomatitis, no bad odor, in short, no symptoms of mercurial poisoning. He showed me the tablets which the druggist had given him; they were, as stated, 7.7-grain corrosive sublimate tablets, combined with an equal amount of ammonium chloride. He indicated to me the amount of water in which he dissolved the tablet and the amount was between four and six ounces. In other words, the strength of the bichloride solution which he used as a urethral injection was about 1 in 250 to 1 in 350.

And in all he used about three grains of corrosive sublimate; but, of course, he let the injection run right out. That there were no systemic symptoms I ascribe to the fact that the strength of the solution by necrosing the mucous membrane prevented the absorption of the poison; the effects therefore were purely local. That his bladder was apparently not injured, I ascribe to the fact that he injected gently and did not force open the shut-off muscle.

He tried to urinate unaided, but failed. I then with great difficulty anesthetized the urethra, passed a small catheter, and withdrew twenty-two ounces of urine. The patient at once felt relieved. For the penis I ordered compresses of liquor alumini acetatis (Burrow's solution); to do away with the strangury I ordered rectal suppositories of morphine sulphate (gr. ¼) and atropine sulphate (gr. 1-60); also, internally a mixture of potassium bromide, potassium acetate, arbutin, and fluid extract of triticum; also to drink frequently of a cold infusion of linseed. This treatment improved the patient's condition at once. The swelling went down considerably; the pain and burning on urination disappeared almost entirely. But on the next day a profuse thin discharge made its appearance and the urine contained numerous flocculi. The patient was, of course, sure he had gonorrhea, but I was convinced of the contrary. Numerous examinations failed to disclose a single gonococcus or a gonococcus-like diplococcus. It was pure—one might say chemically pure—pus, caused by an irritating antiseptic. I used no local treatment whatever—only internal demulcents and mild diuretics, and the discharge gradually diminished; it is now reduced to the fraction of a drop in the morning,

simulating the morning drop of gonorrhea, and the urine contains flocculi; they are, however, entirely different from Tripperfäden and they, as well as the minute discharge, are entirely free from cocci. The wedding, which was necessarily delayed for a month, is to take place in a few days and I have no hesitancy in giving him my unqualified permission.* During one period in the treatment there seemed to be a tendency to the formation of stricture, but several dilatations with Kollmann's dilator, followed by the instillation of a 1 per cent. solution of thymol iodide in oil, restored the urethra to its normal caliber, and it is now perfectly normal in this respect.

Case II. This case concerns a young man who was suffering with too frequent nightly emissions and who was advised to use an injection of zinc sulphate as a remedy. The prescription called for zinc sulphate, 2 drams; water, 1 pint. After using this injection for two weeks he noticed a slight thin discharge; he thought this was semen (!), and increased the frequency of the injections. The discharge then increased, becoming thicker, according to his statement. He then went to a physician, and in spite of telling him the history of the case, in spite of assuring him that he had never had intercourse in his life, the doctor proceeded to treat the case as one of gonorrhea. (We are sometimes too ready to consider our patients liars.) He never examined the discharge, but gave him the regulation treatment of copaiba and santal oil internally and

* The patient was married on November 1; on the 18th he reported himself as perfectly well, and an examination failed to disclose any pathological condition, except that the urine still contained a few small sterile flocculi.

potassium permanganate as an injection; later on he changed the potassium permanganate to an organic silver preparation. Under this treatment the case was getting gradually worse, the discharge was increasing and so were the nightly pollutions, and what is worse, the patient developed a stricture. When he applied to me for treatment the discharge was thin, but profuse, and no gonococci whatever, after numerous and repeated examinations could be found. About 2½ inches from the meatus there was a stricture, which permitted the passage with some difficulty of 18 F. I told him to discontinue all treatment for ten days and present himself at the end of that period. He did. His discharge had diminished materially, being only a few drops in the morning and practically nothing during the day. I then began to dilate his stricture, which yielded completely to twelve dilatations. The only other local treatment I gave him was the instillation of a dram of a 1 per cent. solution of thymol iodide in olive oil. The stream of urine became normal, the discharge disappeared, with the exception of a minute drop in the morning, which also finally yielded to small anterior injections of 5 per cent. alcohol (alcohol U. S. P. 1 part, distilled water 19 parts). I have not seen the use of alcohol as a remedy against urethral discharges mentioned anywhere, but it has rendered me good service in some very obstinate cases. In some instances I use it 10 to 20 per cent. strong and even stronger.

Case III. The third case was one of what I call silver-nitrate urethritis, of which thousands and thousands of cases walk the land, and I report it, not because of its rarity, but because of its commonness, in order to call attention as forcibly as I can to a form of malpractice very

prevalent in our profession; well-intentioned malpractice, but malpractice, nevertheless. I refer to the custom, handed down to us from former decades, of "testing" the reality and permanence of a gonorrheal cure by injecting into the urethra a strong solution of silver nitrate. And if there is anything I am convinced of in the handling of genitourinary cases it is that many a cured case of gonorrhea may become, by repeated injections of silver nitrate, converted into a rebellious or practically incurable case of chemical or bacterial urethritis. In the early days of my practice I was guilty of the same practice and more than once have I injected a, to all intents and purposes, cured case of gonorrhea—no discharge, no gonococci, no shreds —only to have the patient come back with an obstinate discharge, which it took weeks and often months to cure; and after each "testing" the discharge was less and less amenable to treatment. And I state it as my positive opinion that thousands of people are walking the earth with urethral discharges which were caused by assaulting the urethra, weakened by gonorrheal infection, with an irritant chemical, and who would have remained perfectly well if their urethra had not been subjected to any such heroic tests. The late Lassar was the only one of the "big" men whom I heard condemning the silver nitrate test in most unequivocal language. I trust that these lines may have the effect of inducing some colleagues to discard the test altogether, or, at least, to be very cautious and mild in its application.

This case is a clear-cut case of silver nitrate urethritis. Mr. O., 22 years old, noticed a urethral discharge on May 22, 1908. It was the first time he ever had any trouble.

He came to me for treatment May 23. Examination showed the presence of numerous gonococci. Under the treatment the discharge completely disappeared in three weeks. I kept him under observation for three weeks more and then discharged him cured. I use the word *cured,* because contrary to the opinion of some urologists, I believe that gonorrhea can be as perfectly and as radically cured as many other diseases, say chancroids, or eczema, or scabies. There was absolutely no discharge; the urine was clear of shreds, the expressed secretions from the prostate and the sediment from the centrifugalized urine showed no gonococci, and I told him that I considered him perfectly cured. I felt especially justified in doing this, because at no time were there any symptoms of posterior involvement and I felt sure that the infection was all the time limited to the anterior portion. To the question whether he could marry safely, I replied in the affirmative. "But," I said, "if you want to feel at perfect ease, come a month or so before you intend to get married and I will give you again a thorough examination." And this was the last I saw or heard of him until October, 1909. He became engaged in the spring of that year and the wedding was to take place in September. Early in August he called at my office to be examined, but was told that I was away in Europe and would not return until the beginning of October. He then went to another physician, to whom he told the entire history of the case. And he also told him that I considered him perfectly cured and he considered so himself, because during the thirteen or fourteen months his urine had been perfectly clear and he had no symptoms of any kind.

The doctor proceeded to apply the beer-silver test. Though the patient was not a beer drinker and detested beer, he was told to drink several glasses of beer for three evenings in succession. This produced absolutely no effect. The doctor, however, was not satisfied with this test, but proceeded to inject silver nitrate. I never could find out what the strength of the solution was, but the patient said that the pain was intense, and several hours later the urethra began to discharge. This was taken by the doctor as positive proof of gonorrhea, which he proceeded to treat. He treated the patient both internally and by injections, and he treated him very vigorously. But when he came to me two months later, in October, his discharge was, according to his statement, worse than ever. I subjected the discharge to numerous examinations, all of which were negative as far as the gonococcus was concerned. I discontinued all treatment for a month, with the exception of advising him hot sitz-baths. The discharge had diminished by the end of that period, but it was slow work to stop the discharge entirely; it took five months before I could pronounce him cured. Examinations for gonococci, undertaken at different periods, all proved negative.

Here a man had to suffer pain, annoyance, anguish, and great expense for seven months as a tribute to an old brutal test handed down to us by sanctified tradition and accepted by us without criticism, without analysis. There are only too many such cases. And if, as is often the case, a bacterial infection becomes implanted on the originally sterile discharge, then we have to deal with a bacterial urethritis, which is sometimes more rebellious to treatment than a simple gonorrheal urethritis.

Case IV. The patient, a prominent member of the pharmaceutical profession, contracted gonorrhea six years ago. As he was a clever man in pharmacy, his papers being sought by the pharmaceutical journals and pharmaceutical associations, he thought he was also clever in venereology. He treated himself with argyrol, protargol, potassium permanganate, zinc sulphate, bismuth subnitrate, Lloyd's hydrastis, hydrogen peroxide, etc., locally, and with santal oil and its various combinations internally. And *mirabile dictu* in about fourteen weeks he was cured. That is, he thought he was. He had no discharge, and this to his mind was the proof that the gonorrhea was cured; this pernicious idea still lurks in the minds of the laity, and unfortunately also in the minds of many country and not a few city physicians. Every four to six months, however, he would notice again a slight discharge, which he would ascribe to a fresh infection. But as he would "cure" it each time with a few injections of zinc sulphate and potassium permanganate, he attached no importance to these attacks and used no precautionary measures or prophylactics. During one of those attacks he injected himself rather forcibly, or perhaps the syringe was not aseptic, and he was laid up for three weeks with a severe epididymitis. He was then treated by a competent physician, and when he got well of the epididymitis he continued to treat himself without a doctor—for about six months—until he was all well—according to his statement. That is, his urine, which always contained shreds, cleared up almost perfectly, showing only a few small flocculi. Repeated examinations by a bacteriological laboratory showed absence of gonococci; whether the examinations in those

laboratories are always conducted with the painstaking care and attention to all minutiæ that such examinations demand, I do not know, but all the reports he brought with him stated: gonococci not found.

He remained apparently well up to about eight months ago. Once in a while he would feel a little moisture about the meatus, either spontaneously or after micturition or defecation. It is my opinion that this was nothing but a little secretion of mucus from the urethral glands, or perhaps some prostatic fluid. Eight months ago he became engaged, and then the little moisture increased in amount, and was more frequently in evidence. Again it is my opinion that it was an innocent affair—a slight urethrorrhea or prostatorrhea is not a rare phenomenon in *engaged* men. But he became annoyed, thought it was his old gleet, and decided to cure it himself. He inquired of a physician, what was, in his opinion, the best treatment for chronic gleet and the doctor told him that as far as he knew, deep instillations of a five to ten per cent. solution of silver nitrate gave the promptest and best results. Glad of the information, our friend secured a 4 dram syringe and filled it with a ten per cent. solution of silver nitrate. The very clever druggist, clever in his own line, did not know the difference between instillations and injections. He held in the injection for about five minutes, in spite of the fact that the pain was acute. There was immediate strangury, and in spite of his repeated painful efforts to urinate he was unable to do so. About ten hours after the injection, the pain, strangury, desire and inability to urinate became excruciating and he applied to a physician, who catheterized him after much effort. He was ordered mor-

phine and atropine suppositories, potassium citrate and fl. ex. hyoscyamus internally, and hot baths. This improved the condition somewhat, but the following morning he woke up with an abundant purulent and sanious discharge, and the urine contained much débris and large shreds. Micturition was painful and frequent. He consulted three physicians in rapid succession, but expecting too rapid results, he was too impatient to use the prescribed treatment faithfully and systematically. After six or seven weeks of desultory treatment he applied to me. I found no gonococci, the discharge was practically sterile, but I found several strictures of large caliber. I explained to him his condition. I told him that he was suffering from chemical, in his case, silver nitrate urethritis, and I impressed upon his mind that if he expected a rapid cure he should seek another physician, that I was not a cure-quick doctor. Many patients need a talking to right at the start. It clears the atmosphere, and teaches them not to be impatient and not to expect miracles. My patient became very docile, admitting that the proverb that he who treats himself has a fool for a patient was even truer than the one used about lawyers, and he followed instructions religiously. The treatment consisted principally in passing sounds and Kollmann's dilators and in instillations and injections of sterilized solutions of aristol or europhen in olive oil. After four months' treatment twice a week at first, and once a week toward the end, I was able to discharge him *cured*.

I wish to emphasize the following points:

1. Urethritis of chemical origin is more common than is generally supposed.

2. While most cases are caused from self-administered injections prescribed by barbers, friends, and others, some cases owe their origin to the over-zealousness of physicians.

3. The unscientific and unjustifiable test of injecting strong solutions of silver nitrate, which should be forever discarded, has been responsible for very many cases of chemical urethritis.

4. The diagnosis of chemical urethritis is made by the history of the case, the freedom of discharge from gonococci and, generally, its improvement on being let alone.

TREATMENT

The treatment of chemical urethritis has been outlined fully in the reports of the cases. I merely wish to emphasize that one of the most useful agents in the treatment is warm sterilized olive or almond oil, or a ½ to 1 per cent. solution of some organic iodine derivative (iodoform, dithymoliodide, europhen) in one of the above oils.

Tendency to stricture should be prevented by dilators or by sounds dipped in the just referred to solutions.

CHAPTER XII

PROPHYLACTIC URETHRITIS

Apparently there is no good without some attending evil. Almost every reform, every sanitary measure, is accompanied with some undesirable, often unexpected and unlooked for results. The writer, as the readers of his works undoubtedly know, has been one of the earliest, strongest and most persistent advocates of individual venereal prophylaxis. Venereal disease, whether gonorrhea or syphilis, is such a terrible calamity that every measure that will reduce the danger of infection is to be supported vigorously, to be advocated energetically. And the fact that venereal prophylactics are beginning to be used quite commonly is to be considered as a sign of progress, as a distinct gain in our fight with the venereal scourge. But I always feared, nay I felt certain, that its initial use would be followed by some undesirable features. There was undeniable danger that some men, feeling over-secure, would rush into places from which they would keep away otherwise; others, with contempt bred of familiarity, seeing that they indulged for years without any mishap, would become careless and would apply the prophylactic in a neglectful and perfunctory manner—and then there would be trouble and they would swear at the prophylactic and its advocates. Others, overconscientious and overscrupulous, would use too much of the prophylactic or would use an

extra strong one, and then there would be trouble again, though of a different character. And it is to this last trouble that I am referring in this chapter, because during the past year I have met with several cases of urethritis and penile irritation which, somewhat puzzling at first, were later shown to have been due to the improper use of the prophylactic or to the use of an improper prophylactic. I have therefore applied to this form of urethral and penile inflammation the term of prophylactic urethritis, and prophylactic balanitis or balano-posthitis, respectively, as the case may be. In reality, however, it is merely a variety of chemical urethritis.

CHAPTER XIII

TRAUMATIC URETHRITIS

Traumatic urethritis results from injuries to the mucous membrane of the urethra produced by foreign bodies introduced into the canal. The foreign bodies are usually introduced for purposes of masturbation, and among the commonest are lead pencils, slate pencils, penholders, matches, sticks of wood, smooth or deliberately roughened, etc., etc. Of course the urethritis is rarely due to the trauma alone, but to the trauma plus infection: the injured and abraded mucous membrane is a favorable soil for the development of various micro-organisms. (The urethritis following the frequent or permanent use of a catheter is generally more due to infection than to traumatism.) The diagnosis of the case is of course easily made by the history. But in such cases patients *are* apt to lie, on account of shame, and then the character of the discharge and an endoscopic examination will be of aid. The treatment consists in mild antiseptic injections or irrigations (boric acid 1 per cent., saline solution 7 to 1,000, potassium permanganate 1 to 3,000, chinosol 1 to 1,000, solution of europhen in oil, 5 per cent., etc.) and in the administration of oil of sandalwood and hexamethylene. But after the discharge and all other signs of inflammation have subsided we should carefully examine the urethra for any strictures. For traumatic urethritis is very apt to give rise to strictures, and if any are found they should be dilated by sounds or Kollmann's dilators.

CHAPTER XIV

TOXIC URETHRITIS

An inflammation of the urethra may result from the intake of poisonous or irritating substances, or even from certain foods against which the particular individual has an idiosyncrasy. One of the worst or rather most painful cases of urethritis that I have ever had to treat—it was in the early days of my practice—was in a policeman who took at one dose a teaspoonful of cantharides together with an ounce of tincture of capsicum and an ounce of tincture of zingiber. The mixture was recommended to him as an infallible aphrodisiac, and as he wanted to make a good showing he took it all. He soon however got such a severe burning, strangury and priapism that he was unable to have any relations at all, and in the morning he had a sero-sanguinolent discharge and urination was extremely painful. The condition was, however, relieved in a few hours, and in three or four days he was well. That some people get a urethral discharge after drinking three or four glasses of beer is well known, but this takes place only in urethras that have been afflicted with gonorrhea. It does not mean in all cases that the gonorrhea is not yet cured. The gonorrhea may be "absolutely" cured, that is we may not under any circumstances be able to get any gonococci, and the complement fixation test may be negative; but the urethral mucous membrane has a low resist-

ing power and the irritation produced by the beer is sufficient to call out a discharge. Potassium nitrate (niter) in very large doses, one-half to one ounce, may cause a slight discharge in a previously damaged urethra. I had such a case in a man who had had several attacks of gonorrhea. But the drugs above enumerated are about the only ones which may in very large doses cause a urethritis in susceptible or previously damaged urethras. The statement that a urethritis may follow the ingestion of cress, asparagus, strawberries, etc., must be taken with a grain of salt. Of course everything is possible, but I would have to be very sure of my patients before I would accept such an etiology.

The treatment of toxic urethritis is obvious: bland drinks and diuretics: linseed tea, sodium citrate, tincture of hyoscyamus, *small* doses of oil of sandalwood. Suppositories of opium and belladonna or morphine and atropine may be necessary. No injections need be used. The diet should be light and bland (no spices), no coffee or tea or carbonated water, but plenty of milk and plain water.

Diathesic Urethritis. The older writers believed that a urethritis may occur as a result of rheumatism, gout or diabetes. I do not deny this possibility, but I believe that a modern careful examination would show such cases to be of simpler origin: a microbic origin would be revealed. A profuse urethral discharge may also occur in the course of pneumonia or typhoid; but here also, I believe, we have to deal with the exacerbation or awakening of a dormant, semi-cured gonorrhea.

CHAPTER XV

URETHRITIS FROM EXCESS AND MASTURBATION

We are told that urethritis may occur from excessive sexual intercourse, from excessive unsatisfied libido and from excessive masturbation. That this may occur in a urethra which has been weakened by a previous gonorrhea —even if the gonorrhea be entirely cured—I admit. But that it may take place in an intact urethra, I deny. It is not wise to be dogmatic about anything in medicine, and I would therefore change the phrase "I deny" to "I strongly doubt." I have now under treatment a masturbator, who has been masturbating for twenty years; he will not masturbate for months at a time, but when he once yields, he will masturbate 10, 15 and 20 times a day. In the last few acts just a few drops of a thin fluid will come out—not at all like semen—and he will be completely exhausted. But he has never developed any trace of discharge, though his urine contains a few small shreds from the posterior urethra, as that of most masturbators does.

I have had persons under treatment who made perfect beasts of themselves in intercourse (no, this is unjust to the beasts, as they never overdo it). Some men have been in the habit of performing the act so many times during one night, that in the last acts only a sanguinolent fluid would issue. And still they did not develop any urethritis.

I therefore must deny the probability if not possibility of urethritis from excess per se.

Ricord relates the case of a physician who had had no intercourse for six weeks and then passed the entire day from 10 in the morning to 7 at night with a woman whom he loved. He desired to have relations with her, he was in a state of continuous excitement, but he was unable to overcome her resistance. His excitement was therefore not allayed, and three days later he developed a painful urethritis. We do not know however the previous history of that doctor's urethra, and Ricord's case is therefore not conclusive. That long, ungratified excitement will induce a congestion of the posterior urethra is well known, but between congestion and inflammation there is quite a gap.

CHAPTER XVI

THE WIDELY VARYING CONDITIONS KNOWN AS CHRONIC GONORRHEA

Before we proceed to outline the treatment of chronic gonorrhea a few preliminary remarks are very essential. A vast conglomeration of greatly varying conditions are comprised under the term chronic gonorrhea. While when we say Acute Gonorrhea, or Acute Gonorrheal Urethritis, we refer to a distinct and definite entity, this is not true of the term chronic gonorrhea or chronic gonorrheal urethritis. In fact so confused and indefinite is the etiology, pathology and symptomatology of chronic gonorrhea that we need not treat it as a separate entity, and can speak of it simply as chronic urethritis.

And it will be seen that while I treated the various forms of acute urethritis under separate heads, I do not do so in the case of the chronic forms of urethritis, but treat them all together under one head; because, whether a chronic urethritis be due to the gonococcus or to another germ (it is generally a mixed infection) or to a non-bacterial cause the treatment is practically the same.

To show how widely varying in every one of their elements—etiology, pathology, symptomatology and prognosis—are the conditions which go under the name chronic gonorrhea, we will briefly present a few cases:

Case 1. Man has had gonorrhea for eighteen months. Has been treated in the approved fashion almost without

interruption since the first day the discharge showed itself. The urine is clear; there are no shreds; only in the morning the meatus is glued together. By strong expression a very minute amount of moisture, hardly enough to be called secretion, is expressed. A smear from this secretion is perfectly sterile. Still the man is worried and is developing neurasthenic symptoms on account of the persistency of that little moisture. I suspect that the trouble is due to over-treatment, suspend all treatment, tell him to live his normal, regular life and partake moderately of beer and wine as he used to. In a week the meatus becomes normal and there is no further moisture or secretion, and after a thorough test the case is pronounced cured.

Case 2. Similar to Case 1, except that there is a good-sized "morning drop." In the daytime no secretion of any kind, the meatus perfectly dry. No gonococci. I suspect that the morning drop is kept up by the silver nitrate irrigations and instillations which he has been receiving two or three times a week. I stop those and order a 3 per cent. zinc sulphate solution injected twice a day, after three days to be injected only once a day. In about a week the discharge disappears and the patient is quite well.

Case 3. Had gonorrhea for about eight months. No symptoms now except a little minute amount of discharge in the morning and throughout the day. Numerous smears show the absence of gonococci. The urine is slightly turbid. A urethroscopic examination shows a practically normal mucous membrane, no localized patches, no inflammation of Littré's glands or of the crypts of Morgagni. Prostate normal. It is a typical case of post-gonorrheal aseptic catarrh. I order general tonic measures, hot and cold sitz baths on

alternate days, and leaving the urethra entirely alone. After two weeks the condition is greatly improved. A few injections of zinc acetate and hydrastis make the cure complete.

Case 4. Had the first attack of gonorrhea three years ago, of which he claims to have been entirely cured Second attack a year ago, and has had it ever since. The discharge is slight in amount but is always there. Even half an hour after urinating the discharge will appear spontaneously or can be readily expressed. In the two-glass test, shreds in the urine very numerous in both glasses. Has been using a hand injection all the time, with numerous internal remedies. The gonococci in the discharge are in great multitudes. An examination with a bougie-à-boule shows the presence of three organic strictures, irritable and painful. It is clearly seen that the injection he has used never passed beyond the first stricture and was practically useless, as far as any effect on the entire extent of the mucous membrane beyond that stricture was concerned. Endoscopic examination shows numerous sclerosed patches and a very severely inflamed posterior urethra. After irrigating the urethra so that the fluid passes out clear and without any shreds and expressing the prostate, a prostatitis with gonococci in the prostatic discharge is plainly demonstrated. There are also indications that the seminal vesicles are affected. This case of course is in an entirely different category from the previous three cases, and demands dilatation of the strictures, irrigations of the entire urethra, instillations in the posterior urethra, endoscopic applications to the sclerosed and granular patches, and prolonged prostatic massage before a cure is effected.

Case 5. Has had the disease for two years, but not continuously. Some times for two or three months he will have no symptoms whatever. The urine will be perfectly clear, transparent, and free from shreds. Then all at once a discharge will appear, which will keep up for a month or two and then, with or without treatment, will disappear. An examination shows the urethra to be practically normal. The urine in both glasses is clear, but if he urinates in a third glass and at the very last is told to strain hard, then the last portion will contain some small shreds and a little secretion, which examination shows to come from the prostate. Expression of the prostate yields large masses of muco-purulent material. In short, the examination shows that the man really has no urethritis, only a prostatitis, and that the reinfections and irritations of the urethra come from the prostate gland. Treatment directed exclusively to the prostate effects a cure in four months.

An analysis of the above cases, brief and cursory though it be, shows that what goes under the name of chronic gonorrhea is not a distinct entity, and that we cannot hope to treat all cases of chronic gonorrhea by one set formula. Here, if anywhere, we must "treat the patient and not the disease."

But now, having emphasized these things, having, I hope, succeeded in impressing upon the mind of the physician that discrimination and judgment is necessary in the treatment of every case of chronic gonorrhea (much more so than in the acute variety), I permit myself to give a general outline of the treatment of the majority of cases as they present themselves to the general practitioner.

CHAPTER XVII

THE TREATMENT OF CHRONIC GONORRHEA

Here, as in acute gonorrhea, we may divide the treatment into general, internal and local.

General. The general treatment in chronic gonorrhea is of minor importance. Things that may prove very injurious in acute gonorrhea are permissible in the chronic variety; not only permissible but sometimes distinctly indicated. The patient may lead his usual mode of life, and need observe but little restriction even as far as alcohol is concerned. In fact patients who have been used to alcoholic beverages often do better when permitted to partake of small amounts of wine or beer than when entirely cut off from any alcoholic indulgence. Many cases who have an obstinate catarrh of the urethra which does not seem to yield to any measures show rapid improvement when permitted to drink some beer or wine or even whiskey. (See the chapter: Gonorrhea vs. Alcohol, Tobacco and Sexual Intercourse.) Exercise is also permissible, in fact many patients begin to do very much better when permitted to exercise. Of course, common sense is here necessary as in every other department of medicine. For instance, if the patient has as a part of his chronic gonorrhea also a chronic prostatitis, particularly one which shows ready exacerbations, then he will abstain from any exercise which involves the lower part of the body, such as running, bicycling, auto-

mobiling, etc. This is also true of cases which had an epididymitis. In some patients an epididymitis is apt to reoccur on the slightest provocation, and such patients will do better to abstain from any exercise, such as walking, etc., until practically cured. Sexual intercourse in moderation is also permissible; nay, in many cases it is the strictly enjoined complete abstinence which is responsible for the keeping up of the prostatitis, congestion of the posterior urethra and discharge. The only injunction you need give to the patient is to see to it that his bowels move regularly and that he does not permit himself to get constipated, but this is a good injunction for anybody, even one who does not suffer with gonorrhea. Bathing, both hot and cold, is decidedly useful. A change of air is not indicated. When a physician sends a case of chronic gonorrhea to the country or for a sea voyage it is because he has exhausted all his resources, he wants to get rid of the patient or he wants to try something on a "perhaps." I have not found it necessary in any case.

Internal Treatment. The internal treatment is also of very minor importance in chronic gonorrhea. Indeed in a very large number of cases of chronic gonorrhea we can get along without a single drop of any internal medication whatever. If we do give internal treatment it is not with the hope of attacking the gonorrheal foci but for secondary reasons. For instance, if there is a mixed infection or an accompanying cystitis we may give urotropin and sodium benzoate. When we use sounds or dilators in the urethra we also give liberal doses of urotropin both before and after treatment to prevent infection. In giving silver nitrate instillations the reaction is sometimes very severe—that is,

the strangury and burning on urination. To alleviate these symptoms we give sandalwood or gonosan, etc. Where the patient shows a tendency to recurrent epididymitis, then good doses of sodium salicylate, salol or aspirin may be indicated. Sometimes when the patient is foolish and inclined to be neurasthenic we must give him a placebo. The placebo will have no direct effect on the genito-urinary tract, but it is good for his nerves. To repeat, I do not exclude internal medication entirely in the treatment of chronic gonorrhea, but I do not give it with any hopes of direct effect on the genito-urinary lesions.

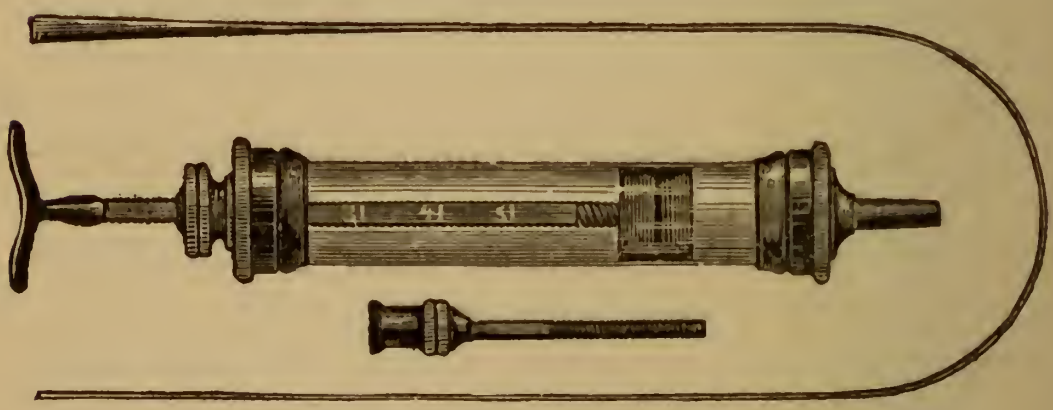
Local Treatment. This is the most important and is in the vast majority of cases the only treatment indicated. Briefly stated, the treatment consists of injections, and irrigations, instillations, dilatation and endoscopic applications.

The drug par excellence in chronic urethritis is silver nitrate, and with this drug alone, properly used, we can cure a very large percentage of our cases. It is used either in the form of irrigation, injection, instillation or concentrated application. For irrigation purposes I use it in the strength of 1 in 10,000, increasing the strength to 1 in 1,000. By increasing the strength very gradually we avoid irritation, with the consequent discharge, strangury, and so forth. The amount used per irrigation differs from 8 to 32 ounces (250 to 1,000 c.c.). This irrigation is repeated twice a week as a rule. In many cases once a week suffices. The entire urethra is irrigated, for while in the acute disease we distinguish between anterior and posterior urethritis, there is practically no line of demarcation in the chronic variety—the entire canal is more or less affected. If the

neck of the bladder also shows signs of implication in the gonorrheal process the bladder is also irrigated, but here it is best to use a few drops of a strong solution, 1 per cent., by instillation.

Irrigation may be performed by the means of the well known Janet-Valentine irrigator, but I prefer to use a large Janet-Frank syringe of 150 to 250 c.c. capacity.

For injection purposes I use the silver nitrate in the strength of 1–1,000 to 1–250, and generally from 2 to 6 drams at a time. While the irrigating fluid is permitted to run right out the injection fluid is made to remain in the urethra from 2 to 5 minutes.

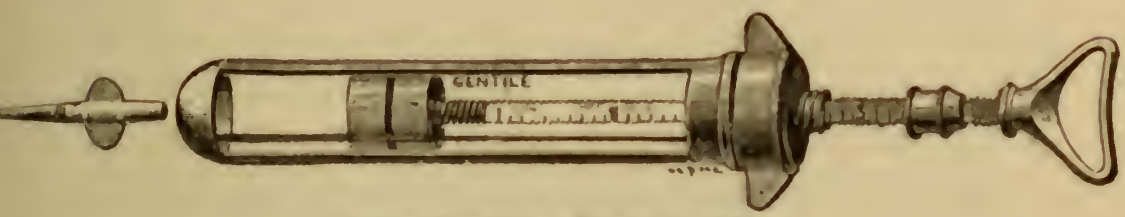


Guyon Syringe and Catheter.

Instillations I use generally when the posterior urethra and the neck of the bladder is affected. For this purpose I use almost exclusively the soft rubber Guyon catheter and syringe. The strength of the solution varies from 1 to 5 per cent. and from 3 to 20 drops are deposited on the affected portion.

When endoscopic examination shows the presence of local-

ized patches of inflammation or erosion then topical applications through the endoscope, applications to the spot, are indicated. The applications are made by the aid of a cotton carrier, and the strength of the silver nitrate solution may be from 1 to 10 per cent. Instead of silver nitrate, a mixture of equal parts of tincture of iodine and phenol is often markedly beneficial.



Guyon Syringe, French make

Ultzman Syringe

I stated that by silver nitrate alone we can cure a large majority of cases. But not all. In some cases silver nitrate exerts a decidedly injurious effect. The patient's mucous membrane seems to possess an idiosyncrasy against silver nitrate. The condition of the urethra remains either entirely unaffected by the silver nitrate or becomes worse. In such cases we must have recourse to other chemicals, and zinc sulphate is one of the best. How do we know whether to use silver nitrate or zinc sulphate? We do not. The treatment of chronic urethritis is unfortunately still in the empirical stage. We can never predict before-

hand just how a certain chemical will affect a patient's urethra and how long the treatment will last. We must simply keep on trying. We use first one drug and if the patient's urethra responds well to the treatment we continue to use it, perhaps changing the strength now and then, but if after a few applications (i.e., irrigations, injections or instillations) the condition remains the same or becomes worse, then we have to change to another drug. It is perfectly ridiculous to keep on with silver nitrate for months and months at a time, as some physicians do even when they do not notice the slightest improvement. Because silver nitrate is a very beneficial drug in some cases of chronic urethritis, it does not mean that it is beneficial in all cases. The beneficial effect must show itself soon, and if it fails to show itself a change is indicated.

The zinc sulphate may be used in strengths of $\frac{1}{5}$ of 1 per cent., to 5 per cent., that is from 1 gr. to the ounce of water to 25 grs. to the ounce of water. Often it is well to alternate the zinc sulphate with some other astringent, such as copper sulphate, 1 to 2 grs. to the ounce. Latterly iodine has given me good results in a restricted number of cases. It is generally in those cases in which silver nitrate proves irritating that tincture of iodine in a very diluted form (5 to 25 drops of the official tincture to an ounce of water) proves beneficial. For applications through the endoscope the pure tincture may be used.

If the patient cannot come to the doctor's office frequently enough then we must sometimes prescribe an injection for him to use on himself. In such cases the best injections are a 2 per cent. solution of ichthyol or a 2 per cent. solution of zinc sulphate or zinc acetate, or the zinc sulphate, lead

acetate and bismuth sub-nitrate mixture (see Formulary). Alternating injections will always give better results than using the same injection uninterruptedly. I therefore often have my patient use two injections on the same day or different injections on alternate days.

Irrigations, injections and instillations will cure the great majority of cases, but where there are strictures, either fully formed or in the process of formation, or sclerosed patches, all these measures will often prove inefficient. Here we have another procedure which is generally very helpful.

Dilator for Anterior Urethra

Dilator for Posterior Urethra

This is dilatation by the means of sounds or dilators. What the exact rationale is of the benefit by sounds and dilators is not very clear, but there is no question that dilatation, if not abused, has a remarkably beneficial effect on the course of chronic urethritis. The use of the sounds is simpler than that of dilators, but the superiority of the dilator over the sound lies in the fact that the former can be passed through a small meatus and then dilated in the urethra to any desired circumference, while in treatment with sounds we must perform meatotomy if the patient

happens to have a narrow meatus, which is quite frequently the case. The proper interval for the use of sounds and dilators is once every five days. Once a week is often sufficient, but they should never be used more than twice a week. I do not believe, however, that much benefit can be derived from leaving the sound or dilator in one or two minutes. Ten minutes is about the proper period. It may be left in as long as twenty minutes.

Where there are indurated patches and inflamed glands and lacunae, it is well to massage them over the sound (while the sound is in the urethra), and we often succeed in expressing a good deal of secretion from them. Properly performed such a massage over sound or dilator with painstaking expression contributes a good deal towards the cure of the most obstinate gonorrheas.

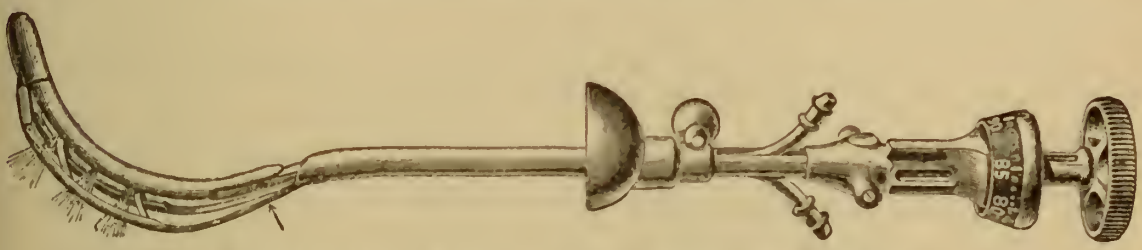
A small percentage of patients are very sensitive to the use of dilators or sounds and are apt to get what we call a urethral chill and an aggravation of all other symptoms, but this usually occurs only after the first or first and second treatments. If done gently and aseptically, all trouble can be avoided. Always remember, however, to have the patient take a good dose of hexamethylenamine before he comes to your office and give him one when he is leaving the office.

There are on the market also irrigating dilators, where the irrigation and dilatation can be performed simultaneously, but I believe that these instruments are best left in the hands of the specialist.

The proper method of procedure in treating a patient by sounds or dilators is as follows: (1) the patient urinates; (2) the urethra is washed out with a warm boric acid solu-

tion, 2 per cent., or a 1-10,000 mercury oxycyanide solution; (3) the sound or dilator, properly asepticized and lubricated (with a water soluble and not an oily lubricant) is passed into the urethra and allowed to remain ten, fifteen or twenty minutes; (4) the urethra is again washed

Irrigating Dilator for the Anterior Urethra



Irrigating Dilator for the Posterior Urethra

out with a warm boric acid or a normal salt solution; (5) the injection, irrigation or instillation proper, with silver nitrate, zinc sulphate, diluted tincture of iodine, or whatever else may be decided upon, is administered.

Such a treatment as outlined above gives results, definite and positive results. And I personally believe that, properly speaking, there is no such thing as an incurable case of gonorrhea. Every case is curable, for all practical purposes. There are hundreds of thousands of cases of uncured, and under our present conditions incurable cases, but the fault is not with our lack of knowledge. It resides in the social and economic conditions of the patient, which prevent him from employing a competent physician for the proper length of time.

VACCINOTHERAPY

The reader may be surprised that in outlining the treatment of acute and chronic gonorrhea I have not made any mention of the vaccines or bacterins. The reason is a very simple one. I have not done so because I am not an enthusiastic believer in them. Now, do not draw false conclusions. It does not mean that I do not believe in the vaccine treatment of any disease, nor does it mean that I do not believe in the value of vaccine treatment of certain complications of gonorrhea, particularly of arthritis. It does not even mean that I deny that the administration of vaccines may prove of value in some cases of chronic gonorrhea. It does mean, however, that I believe the percentage of cases in which the gonococcic vaccines or bacterins, either the simple or the mixed, is of benefit, is so slight that it is not worth while advising their use to the general practitioner.

I believe that on the whole more harm than good is being done by them. I have patients sent to me from different parts of the country on whom vaccinotherapy has been practiced for weeks, months and even years, and not only without any benefit but with distinct injury, and for this reason I do not care to enlarge upon the subject in this book. Still, if a physician wishes to use the vaccines or bacterins in any of his obstinate cases he is welcome to do so. He needs no instructions from us on this subject, for the packages come ready prepared and he can readily obtain all the necessary literature from the manufacturers.

I wish, however, to repeat that both from my personal experience and from an analytical study of the reports of

conscientious investigators (not those who rush into print with their successes with every new remedy), I am convinced that the antigonococcic serums, vaccines and bacterins, not even excepting the latest of Nicolle and Blaizot, are of but slight if any value in the treatment of gonorrheal urethritis. That an efficient vaccine may be produced in the future is possible, but this is not yet the case. We have not yet an efficient anti-gonococcic vaccine, and of those we do have we are still in ignorance as to dosage, intervals of administration, indications and contraindications. To shoot a patient full of bacteria on the principle that they may do some good is neither scientific nor fair. I at least cannot give it my approval.

And in this connection the following quotation from Adami is pertinent. This careful and thoughtful physician says:

"Thus as a final principle it may be laid down—and I do this with a full sense of the necessity and responsibility that attaches thereto—that vaccine therapy is not to be undertaken by the ordinary practitioner; there are too many dangers attaching thereto; and with this corollary, that, excellent as may be the stock vaccines prepared by certain firms, to advertise these light-heartedly and recommend them and their employment far and wide deserves the condemnation of this association and all interested in the wellbeing of their fellow-men." (Symposium on Vaccine Therapy, Meeting of the Association of American Physicians, 1910, quoted from *American Journal of Urology,* Jan., 1911, p. 25.)

And the following quotation from Vaughan emphasizes still more strongly the necessity for caution and the great

danger that may arise from the use of vaccines by the general practitioner:

"Every time an unbroken protein is introduced into the body it carries with it, and as a part of it, a poison. From the very careless, rash and unwarranted way in which 'vaccines' of most diverse origin and composition are now used in the treatment of disease, this matter certainly cannot be understood or its danger appreciated by those who subject their patients to such risks. It should be clearly understood that all proteins contain a poisonous group—a substance which in a dose of 0.5 mg. injected intravenously kills a guinea-pig. Not only do these proteins contain a poison, but when introduced parenterally the poison is set free, not in the stomach, from which it may be removed, but in the blood and tissues. It is possible that vaccine therapy may become of great service in the treatment of disease. Even now there are occasional brilliant results which are reported, while the failures and disasters are not so widely advertised." (From Vaughan's book, "Protein Split Products in Relation to Immunity and Disease.")

CHAPTER XVIII

THE LENGTH OF TIME REQUIRED TO CURE CHRONIC GONORRHEAL CONDITIONS

"How long will it take me to get cured?" is a question very frequently addressed to us by our patients afflicted with chronic gonorrhea or its complications. To some it is just a matter of interest, to some it is a matter of vital importance, either because they want to or must get married at a certain time, or because their financial resources are limited and they can spend only so much. But invariably my answer is: "I don't know; it will take as long as it will take." And I explain to them briefly but understandably, the character of their disorder, the difference between an acute and chronic gonorrhea, the anatomic structure of the genital organs and glands, and why it is impossible to state beforehand, even approximately, how long it will take to cure a certain case. For instance, a case of chronic prostatitis or seminal vesiculitis. We will say it takes on the average four to six months; it may take only two months; but it may take a year or more. If the patient is willing to subject himself to treatment, under these conditions, well and good; if not, also well and good. The intelligent and financially able patient is sure to agree. Under no circumstances is a patient taken under false pretenses, or under a misunderstanding. And it is only with such complete previous understanding that the treatment of a *chronic* gonorrheal patient can be carried on successfully,

and the patient never has any pretensions. Some physicians, for fear of losing the patient, do not make it clear to him as to the probable length of time, or even deliberately mention a short period: a month or two. More is the pity. They hurt themselves eventually more than if they told the truth frankly at the outset. And they also hurt the medical profession in general, by destroying the confidence of the public in the reliability of the doctor's statements. Of course not every physician is sufficiently secure financially to be able to deal with patients with perfect independence and not to mind if he does lose a patient. Again, more is the pity. Because it is only the perfectly independent physician who can do his patients the most good.

And the following case will demonstrate what can be accomplished in apparently hopeless cases by persistent unremitting treatment. Mr. A, age 28, got an attack of gonorrhea at the age of 24, and he has had the gonorrhea and some of its complications ever since. He was treated by several general practitioners. I examined him and found: two strictures, barely passable by 15 F; a beautiful prostatitis, with prostate enlarged and sensitive, with purulent secretion easily expressible; a bilateral spermatocystitis; granular and sclerosed patches in the urethra. A slight gleety discharge constantly present: not only in the morning, but also throughout the day. Urine turbid, full of shreds and bacteria, and some pus. The patient knew that his condition was a severe one, and he did not ask how long it would take him to get cured. In fact he said he did not care how long it took. He was disgusted with his condition and he was determined to get cured, if there was any possibility of his getting cured. He came faithfully

twice a week for over a year; the prostatitis improved after six months, but the spermatocystitis was rebellious and showed no improvement. Nor was it possible to improve the condition of the urine. I told him that there was but little hope of further improvement, unless the treatment was continued for a very long time. He said he did not care if it took five years. He came regularly once or twice a week for another year. He became a joke, a regular fixture in the office. No weather could keep him back. Every Sunday and Wednesday he was there. I got tired of him. I should have been glad if he had also gotten tired. But he did not get tired, nor discouraged. Had he been a sexual neurasthenic, with imaginary troubles, with no anatomic basis for his sufferings, I would have gotten rid of him long before. But he was not a bit neurasthenic, and there was a real pathologic basis for his condition. And so I consented to continue to treat him. At the end of three years and two months I discharged him as *absolutely* cured. His urine was clear and sparkling, the granular patches and strictures were no more, and the prostate and seminal vesicles were normal. Not only were their secretions free from gonococci, they were free from any other bacteria as well. Here was a case of patience well rewarded. Four years' irregular treatment which aggravated his condition before he came to me, and three years under my care—seven years altogether. And why was he so methodical, so persistent, so regular in his treatment during the past three years? First, because he had absolute unquestioning confidence; second, because he *wanted* to get well; and third, most important, there was a little girl whom he was going to make his wife.

And so, while I believe that every case of gonorrhea and its complications is curable, we must refuse to give a time limit. And we must also bear in mind another thing. A urethra that has been the subject of gonorrhea of many years' standing presents forever after a *locus resistentiae minoris,* and may under certain predisposing causes develop a mild urethritis, a slight catarrh. You discharge a patient cured. Urethra normal in every sense of the word, urine clear and sparkling, no complications of any kind. In six months the patient comes to you, with a slight discharge, or perhaps only a little burning sensation on urination or during intercourse. You examine him. No gonococci, no bacteria of any kind, or perhaps a staphylococcus here and there. You give him one or two instillations of $AgNO_3$, and he is well again for a year or two. Then he comes again with the same slight trouble, and again you fix him up in one or two visits. I have several patients who come regularly once or twice a year for the purpose of passing a sound or receiving a silver nitrate instillation. They come at the first appearance of a disagreeable symptom in the urethral canal or in the prostate: a little itching or burning, or a little heavy sensation. And then they are all right again, and are thus kept in good condition all the time. I don't see anything terrible or objectionable in a patient, who had suffered with gonorrhea for several years, being obliged to make a few visits to a specialist once or twice a year, so as to prevent the development of any trouble in his weakened urethra. People go to the dentist regularly once or twice a year. Why should not people who went through a severe attack of gonorrhea visit the genito-urinary

specialist once or twice a year, to prevent any possible trouble, or to cut short any trouble in its incipiency?

To summarize: I believe in the curability of every case of chronic gonorrhea and its complications. But as to the time required, there is no telling definitely. If pressed for an answer I would say: A small percentage get cured in a month or two, a larger percentage in four to six months, a somewhat smaller percentage in eight to twelve months, and a very small percentage requires longer than a year—a year and a half, two years, or exceptionally, if there are many complications, even three years.

In conclusion I will reproduce a little editorial note from the *Critic and Guide* (November, 1914) entitled: Curable and Incurable. It is *à propos* the subject under discussion and is as follows:

CURABLE AND INCURABLE

There is not a single incurable case of gonorrhea.

There are in the United States a million incurable cases of gonorrhea.

Very contradictory, at first sight.

Not a bit contradictory.

What I mean by the two statements is this: there is not in my opinion a single case of gonorrhea which if properly and skillfully treated and treated long enough could not be cured eventually. But there are about a million gonorrheal patients to whom prolonged, proper and skillful treatment is an absolute impossibility, an unrealizable dream. They simply must go on with their lesion or lesions to the end of their days. Naturally, such are incurable cases. There

are a few chronic aggravated conditions to cure which might take a year or two at a cost of a hundred, five hundred or perhaps even a thousand dollars. Can the poor man or the average person afford it? But that does not mean that scientifically speaking such cases are not curable. But economic conditions are often at loggerheads with scientific medicine, and poverty often renders a disease, which is theoretically curable, practically incurable.

So, there is nothing contradictory in the above two statements.

CHAPTER XIX

THE INSTRUMENTS USED IN THE TREATMENT OF GONORRHEA

The instruments required for the proper treatment of gonorrhea are few in number. The general practitioner requires but very few indeed; and even the specialist whose reputation is so well established that he is no longer in need of any tricks to "impress" the patient, can get along with a surprisingly small number.

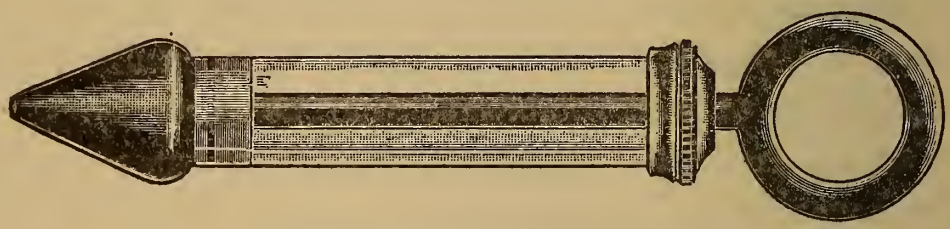
For instance, I find that a 100 c.c. syringe, a Guyon instillator, a set of sounds, a Kollmann dilator, and occasionally the urethroscope, are all the instruments I need in 90 per cent. of all cases, the first two being sufficient in at least 75 per cent. of all cases of acute and chronic gonorrhea. Specialists when writing for the general practitioner seem to be unable to resist the temptation to show off their great erudition, their remarkable skill and their armamentarium chirurgicum. I will present only what is actually needed, what is in daily use.

THE PATIENT'S SYRINGE

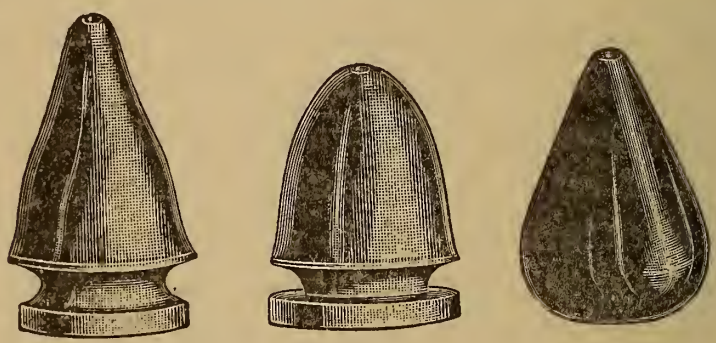
The first instrument we have to discuss does not really belong to the doctor's armamentarium, but is the patient's chief and only instrument. It would be better if the patient did not have to use any injections on himself, having them all given by the doctor or an intelligent nurse; but as this cannot be, and as for many years to come the home

injection treatment will remain an important part of the treatment of gonorrhea, it is important to see that the patient gets the proper syringe. In fact the success of the injections often depends on the character of the syringe: its quality, size, action of the piston and ease, difficulty or impossibility of asepticization.

To tell a patient, as doctors very often do: "Here is a prescription for an injection, get a syringe and use it three



Syringe for patients' use



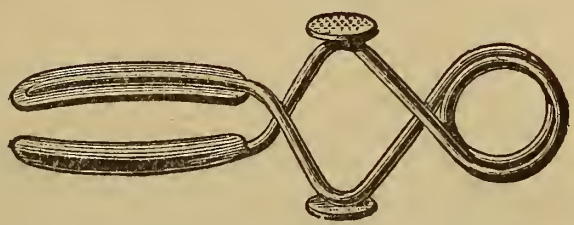
Soft Rubber Tips for Urethral Syringe

times a day," is simply foolish, not to use a stronger word. The doctor must show the patient what kind of a syringe to buy, and must instruct him exactly how to use it. He must himself give him at least one injection, and then make the patient inject himself, so as to see whether or not he performs this little but important operation properly.

The best syringe for the patient is one with a glass barrel, hard rubber mounting and soft rubber tip. It should hold three to four drams. If the patient's anterior ure-

thra is very small, he can fill the syringe only two-thirds full, or he injects one dram first and lets it run out, which acts as an additional safeguard against pushing germs from the anterior into the posterior urethra. It is necessary to see that the piston works smoothly and not in jerks, and that the syringe does not leak.

I do not like the syringes with asbestos packing, for they often "stick." There is an all glass syringe on the market (aseptic), which theoretically is ideal, but it has the objection that the piston often refuses to work smoothly, and the barrel is apt to crack.



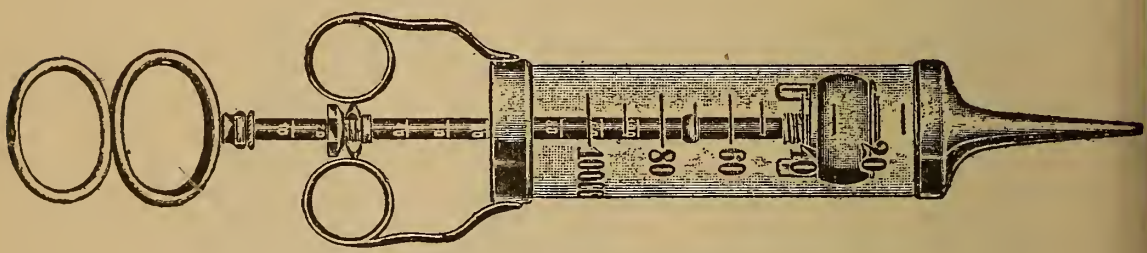
Penis Clamp, put over the glans to retain injections for 10 or 15 minutes

The patient may take the injection standing, sitting on the edge of a chair, or lying down. The steps are as follows: The patient fills the properly kept and rinsed syringe. He then urinates, wipes off the glans and particularly the meatus with a piece of cotton dipped in a bichloride solution; then he raises the penis, with his left hand, to an almost vertical position, opening the meatus with his thumb and forefinger, then takes the filled syringe, inserts the tip into the gaping meatus snugly, pressing it gently against the lips, so that the injected fluid may not run out; he then presses the piston down gently but firmly and steadily, until he has injected about a dram (¼ of the contents of the syringe); he removes the syringe and lets this quantity run

out. He reinserts the syringe and injects the remainder; holding the thumb and the forefinger on each side of the meatus, he removes the syringe, and quickly compresses the lips, holding in the solution for five to seven minutes, when he voids it. He then rinses the syringe with plain water, and puts it in the bichloride solution ready for the next injection. Instead of compressing the meatus with the fingers, a penis clamp may be used.

THE PHYSICIAN'S SYRINGE

A syringe of 100 to 150 c.c. capacity (3⅓ to 5 ounces) serves a number of useful purposes. It can be used for



100 c.c. Syringe for doctors' use

repeated injection of the anterior urethra, for washing out the anterior and posterior urethra, and for filling or irrigating the bladder. The best syringe for these purposes is the well known Janet-Frank syringe. It has a glass barrel, metal mountings, a hard composition packing, and a screw by which the working of the piston can be regulated. The syringe may be thoroughly sterilized by boiling. A soft rubber tip is used with the syringe.

The Record syringes are also made now in large size—100–250 c.c.—but I do not find them so convenient.

CHAPTER XX

THE ABORTIVE TREATMENT OF GONORRHEA

We come here to one of the most important questions confronting the genito-urinary specialist: *Can gonorrhea be aborted?* Is an attempt to abort gonorrhea justifiable? If the first question can be answered in the affirmative, it naturally follows that an affirmative answer must also be given to the second question. Gonorrhea is such a grave disease, its possible complications and sequelæ are so serious and far-reaching, that a really effective abortive treatment would be a boon and a blessing and its discoverer would rank among humanity's benefactors. Unfortunately we are not yet in possession of a reliable and satisfactory abortive treatment, and it is a question if we ever will be. Not that we do not possess efficient bactericides which when brought *in contact* with the gonococcus will surely destroy it. But when the patients come to us the gonococci are no longer on the surface, on the free urethral mucous membrane, but have dug beneath the surface and are protected by several layers of epithelia from the action of the germicidal solution. We may in the future get a preparation which will penetrate deeply into the tissues, but so far such a preparation is not yet at our command. Another objection to the abortive treatment is that it is apt, in a large number of cases, to lead to serious complications, and to leave the patient in a

much worse condition than when he applied for treatment. Casper says that he has seen cases of lymphangitis, lymphadenitis, prostatitis and cystitis develop under the abortive treatment, and in such a way that there could be no doubt as to the causal relationship between the treatment and the complications. We know personally of cases where an attempt at aborting gonorrhea with silver nitrate was followed by the most excruciating pain, profuse bloody discharge, terrible strangury and complete urinary retention for twelve and twenty-four hours.

It must be conceded that the vast majority of genito-urinary specialists are opposed to the abortive treatment of gonorrhea: First, because it does not abort, except in a small percentage; second, where it fails to abort the gonorrhea is generally aggravated; and third, it is apt to lead to painful and serious complications.

I also am opposed to it, as a general thing. And still there are special cases where we are fully justified in making an attempt to abort the disease, and in these special selected cases we are sometimes rewarded with brilliant successes. To illustrate. A. B., age 28, has had intercourse five days before, and for the last forty-eight hours has had an uncomfortable, "hot" and itchy sensation in the anterior portion of the urethra. This morning he noticed a small drop of discharge. By gentle pressure we succeed in expressing another drop, which when examined shows the presence of numerous unmistakable gonococci. (An examination of the woman the following day shows her to be suffering with a chronic gonorrhea.) He has had gonorrhea five years before, but was completely cured, and his urine has been free from shreds. Even now the urine—not only the second but

also the first portion, with the exception of the first few drops—is perfectly limpid and free from shreds. To the suggestion that locally it would be best to wait a day or two, he replies no, that he must be cured as soon as possible, for he is to get married in two weeks. The possible dangers of an abortive course of treatment are explained to him, but he is willing to take all the risks. He is then treated with protargol, by the method to be here outlined; the discharge and the burning increase at first, but at the end of five days the man is completely cured; no discharge, no gonococci, the urine perfectly clear, and the marriage is followed by no disagreeable consequences whatever.

Admitting then that there are cases in which an attempt at abortive treatment is justifiable and even indicated, what is the best method? *Silver nitrate should never be used for the purpose.* In weak dilutions it is inefficient, in strong solutions it is dangerous. Not that we may not succeed occasionally in aborting a case with silver nitrate, but the percentage of such smooth successes is so small and the danger of aggravating the trouble and causing painful complications is so great, that we have no right to use this method. Brutal and risky measures are occasionally successful, but that does not mean that we have a right to sanction them.

There are several drugs that have been used in the abortive treatment of gonorrhea; but we will not waste time in describing them all; we will limit ourself to the two with which we have had most experience; they are protargol and argyrol. They are a strong enough silver salts, but the inflammation they produce is not strong enough to result in healing with cicatricial contraction. Now for the method:

The patient urinates and the *anterior* urethra is gently washed out with about four ounces of warm normal salt solution (7:1000). No force must be used, and not more than a dram or two of solution should be at any time in the urethra (so as to prevent any fluid from opening the cut-off muscle and penetrating into the posterior urethra), and the meatus should not be tightly closed by the tip of the syringe, so that the fluid may flow freely back. A few drops (5 to 10) of a 4 per cent. solution of cocaine, eucaine or alypin are then instilled into the urethra. One dram of a 2 per cent. protargol solution is then injected, and by closing the meatus with the fingers held in for five minutes. In three hours a dram of a 1 per cent. solution of protargol is injected and held in for three minutes. This injection—1 dram of a 1 per cent. protargol solution held in for three minutes—is repeated every two hours until four injections have been given. The next four injections, at three hour intervals, are given with ½ per cent. solutions; and the next four injections, also at three hour intervals, are given with ¼ per cent. solutions. If we use argyrol, the method is the same, only the strength of the solution is different. The initial solution is 50 per cent., and the subsequent solutions 25 or 20 per cent.

The discharge is examined for gonococci every day. At the end of two or three days we know what we may expect. If the abortive treatment proves successful and the gonococci have disappeared or are becoming less and less, well and good. If not, then also well, though not so well; at any rate we have not hurt our patient, and we may then proceed with the regular treatment of acute gonococcal urethritis.

When not to attempt the abortive treatment.—While there are differences of opinion among urologists as to whether abortive treatment should ever be tried or not, there is practically no difference of opinion as to when it should not be attempted. All agree that abortive treatment should not be attempted if the discharge, no matter how scanty, has lasted longer than forty-eight hours; nor if the discharge is profuse and purulent, no matter of how short duration; nor when the meatus is red, puffed and swollen; nor when the glans is turgid; nor when there is a considerable burning on urination; nor when there are the slightest signs of strangury; nor when the patient is suffering with painful erections or chordee. It is too late then to attempt abortive treatment, and that's all there is to it; and besides all the patient's symptoms are almost sure to become greatly aggravated.

CHAPTER XXI

THE PREVENTION OF GONORRHEA

I confess that it is with a feeling of reluctance and displeasure not unmixed with some disgust that I approach the task of writing this chapter.* I would like it much better if it did not have to be written. It would be infinitely better if things were so arranged in this world that no necessity existed for the use of venereal prophylaxis. Whether it would not be better for the world at large if people avoided illicit relations altogether, thus escaping *practically* all danger of venereal infection, is a question the discussion of which does not belong within the scope of this book. I discussed it elsewhere and shall discuss it again. But the fact remains that people do indulge and in spite of all preaching will indulge in illicit relations, not only antemarital but also extramarital. So the question arises: Should we refuse them any protection and permit them to infect themselves, carrying perhaps the infection to their wives and children, or should we teach them how to take care of themselves, so that the venereal scourge may eventually be limited instead of constantly increasing in extent? I believe in the latter. The idea that illicit inter-

* Logically, the chapter on prevention should precede the chapter on cure. Unfortunately, however, most men apply to us after they have gotten the disease, and not before, and to many physicians the subject of prevention of gonorrhea will possess but an academic interest.

course is a crime for which venereal disease is a well deserved punishment is entirely too mediæval, too brutal to meet with my acceptance. Led to its logical conclusion, this idea would consider any physician who treats venereal disease a criminal, because by curing patients of their "deserved" diseases he encourages immorality. Only a man of the mental caliber of a mediæval monk could subscribe to such a belief. The humanitarian physician must not only cure, he must prevent disease, and he recognizes that prevention is vastly more important than cure.

I wish the remedies we do have were more satisfactory than they are; then this book would not have to be written. Not that the remedies that we have are not efficient. But they are unesthetic, some of them are troublesome, and for these two reasons people will often neglect using them. If properly used the remedies may be said to be absolute preventives; but the trouble is that people will either not use them or use them improperly. Truthfully speaking, the fault is not in the prophylactics but in the people, but still if the remedies were pleasant and easy of application they would be used more certainly and more regularly. But there has been gradual progress in this direction, and we may perhaps see an unexceptionable prophylactic in the near future.

The first principle of prophylaxis is personal cleanliness of the genitals. A person who seldom washes the glans penis and allows smegma to accumulate beneath his foreskin invites infection. The foreskin should be drawn back daily and it and the glans washed carefully with soap and water and dried. If there is a tendency to abrasions, washings with alcohol (1 part alcohol and 3 parts water) or with a

5 per cent. solution of alum should be resorted to. Of course no suspicious sexual relations should be had when there is the slightest abrasion on any part of the penis, and should the tendency to abrasions, or cracks, or pimples persist, a physician should be consulted.

Circumcision is an important prophylactic measure, and the circumcised have a great advantage over the non-circumcised in respect to venereal infection. While the importance of circumcision is more striking in avoiding chancre and chancroids, still it also plays a rôle in avoiding gonorrhea. For I am convinced that in many cases the gonococcus is not deposited immediately in the fossa navicularis, but in the preputial cavity, whence it wanders at its leisure into the urethra. The glans can also be much more thoroughly sterilized when the prepuce is absent than when it is present.

A simple but in many cases efficient prophylactic measure is urination immediately after coitus. Many men use no other prophylactic and they seem to be safe. While of course it cannot be scientifically proven that without this precaution they would have contracted gonorrhea, still the fact that some men indulge in promiscuous intercourse for years without once contracting the disease is some presumptive evidence of its value. The stream of urine mechanically washes away the infective material; and besides the urine, being of acid reaction, acidifies the urethral secretion, and this, as we know, is antagonistic to the development of the gonococcus. The man should have plenty of urine in his bladder (he should drink plenty of water and not urinate before coitus), and urinate

immediately. The proper way is to start urinating, then to compress the meatus, and then suddenly let go. This dilates the urethra, and the stream coming out with more force washes out the canal more effectively.

If desired a dose of hexamethylenamine (5 grains) and monobasic sodium phosphate (about 30 grains in a glass of water) or sodium benzoate (15 grains) may be taken before coitus. This renders the urine more strongly acid and also perhaps somewhat antiseptic.

The Condom. The oldest, simplest and at the same time safest protective against gonorrhea is the condom. This mechanical covering was invented by a Dr. Condom, who may well be considered one of the benefactors of the human race. It has no doubt since its introduction protected millions of people from infection. Prof. Blaschko of Berlin has stated publicly that Dr. Condom deserves a monument, as without his little invention all civilized races would probably by this time be completely syphilized. The condom (also called French letter, protector, skins, capote anglais) is made principally of two materials: rubber and fish-skins (that is the swimming bladders of fishes). Each material has its advantages and disadvantages. The rubber is supple and elastic, fits better and does not easily slip off. But being a vegetable material it forms a barrier, and diminishes to a great extent the *voluptas* of the act. In some men it interferes with erection and ejaculation. And some men detest them so that they would rather forego all sexual relations than to use one. The skin condoms do not affect the act so much, but are not elastic, and must be moistened before use. Condoms are also made from the

cecum of sheep and they have the same advantages and disadvantages of those of fish-skin.* Of course only the best quality of condom should be purchased, and one should make sure that the condom is perfect, by blowing it up or filling up with water before use. For the benefit of people in moderate circumstances it may be stated that condoms of good quality may be used more than once, but of course they must be cleansed and disinfected after each use. Wash well in running water and then let it soak in a solution of mercuric chloride 1:1,000 for an hour or two, wipe and dry and put away wrapped up in gauze.

Condom No Protection for Syphilis. While this book deals exclusively with gonorrhea, still I consider it a matter of duty to emphasize that while a good condom is a protection against gonorrhea, it is not a protection against syphilis. I have had in my practice a number of cases of syphilis contracted by patients who used condoms. Not to mention the possibility of infection from mucous patches on the lips, which is self-evident, infection may take place either at the root of the penis or on the scrotum. Only this morning (March 19, 1915) I saw a patient, sent to me by Dr. R. I. Tillman, with a typical chancre at the root of the penis and a well developed roseola over the entire body. Some five weeks ago he had sexual relations with a prostitute. He used a condom, but the chancre developed at the very root of the penis, the part unprotected by the condom. We have no real reliable preventive against syphilis.

Chemical Antiseptics. We now come to chemical anti-

* We understand that at present all so-called fish-skins are made from the cecum of sheep, so that the correct term is really cecal condoms.

septics. One of the simplest and cleanest is a solution of mercuric chloride (corrosive sublimate) 1 to 5,000. Many men carry a small vial of this solution with them, and with a piece of cotton wash thoroughly the glans and squeeze a few drops into the open meatus. Some have told me that they had been using it for years without ever any accident. It is clean, cheap and does not stain the clothes. Some people, however, are sensitive to mercuric chloride and the solution causes some irritation on the glans or in the urethra.

Others use a solution of potassium permanganate (1 to 5,000) by injection. Guiard is particularly partisan to this method. About two to four drams is injected with a hand syringe, retained for a few minutes and let out, and the procedure is repeated several times (5 to 10 times). This method is effective as a prophylactic, but I am not in favor of it. By injection the infecting material *may* be carried further backward, injections are irritating and may cause damage, and besides potassium permanganate stains the clothes and linen. The use of oxycyanide of mercury would obviate the last objection, but there would still remain the objections inherent in all injections in the layman's hands. I have had several accidents from the use of injections and therefore do not recommend them.

Protargol and argyrol have been used extensively and effectively as venereal prophylactics. A few drops of a 5 or 10 per cent. solution of protargol or 20 per cent. solution of argyrol are instilled into the urethra and held there for several minutes. In some cases a slight urethritis is caused by these strong solutions, but the urethritis is readily controlled, and weaker solutions are

used on future occasions or a different combination is substituted.

Silver nitrate is efficient, but is too irritating and I am opposed to its use.

In the last few years, following Metchnikoff's experiments, calomel in ointment form has been used a great deal as a prophylactic against syphilis. It has been found, however, that the calomel ointment also acts as a preventive against gonorrhea and some advise the use of it as a general venereal prophylactic. The glans and prepuce is well rubbed in with the calomel ointment to prevent the development of syphilis and chancroids, and some of it is injected into the urethra and this prevents the development of gonorrhea. The preparation used, for instance, on the U. S. SS. *Rainbow* has the following formula:

Calomel	50 gm.
Liquid petrolatum	80 c.c.
Adeps lanae	70 gm.

This being a semi-liquid preparation, it can be injected with an ordinary urethral syringe. During a period of six months there were 529 admitted exposures, with the development of only four cases of gonorrhea. Of these four one denied exposure and therefore did not receive the treatment, two received it late, more than twelve hours after exposure, so that out of the 529 there is really only one failure, which, considering the character of the women with whom the sailors consort, is an excellent record.

To avoid the inconvenience of having to prepare solutions, of carrying about a bottle and syringe, a number of prophylactics have been put on the market, which have the

advantage of small compass, cleanliness, and readiness for use. Every country has its own preparations—in Germany there are dozens of them. Most of them contain 20 per cent. solutions or mixtures of protargol, some contain albargin, some oxycyanide of mercury: Viro, Selbstschutz, Samariter, etc. There are several in this country, but the best known are the Sanitubes (and the "K" packet). Their use is very simple, and as full instructions for use accompany these preparations, there is no need of giving them here.

Antiseptic Douches. Another very important measure, but one which does not concern the man, is for the woman to take a copious antiseptic douche (mercuric chloride 1:5000) immediately before coitus, or as near before as possible. This measure alone properly used would act as an efficient prophylactic in a very large percentage of cases. I hesitate to say how large, but my opinion is in about 90 per cent. That it would also protect the woman against infection from the man is self-understood. Many prostitutes using this precaution go on plying their trade for years without acquiring any disease; and on the other hand many prostitutes and semi-prostitutes who are diseased, by the simple method of using a copious douche before coitus avoid giving infection and are thus able to keep their customers. It is for this reason that the professionals are often less dangerous than the "occasional" loose girls, because the former have the knowledge and the facilities for using prophylactic measures which the latter have not.

The above are the positive measures for the prevention of gonorrhea. But he who wishes to avoid the disease must also listen to some negative advice. Besides several things

to do, there are also several things not to do. The most important of all Don'ts is: *Don't* drink any alcohol, in any shape or form. Alcohol is a great ally of venereal disease. It has a doubly pernicious effect. It weakens the reasoning power, paralyzes the will, and thus causes the man to lose all prudence, making him tarry at the act or repeat it too many times, and prevents him often—by putting him into a deep sleep lasting several hours—from employing any antiseptic measures. But besides this, alcohol by producing a congestion in the urethral canal makes it more vulnerable and more receptive to infective agents. If no alcoholic beverages were indulged in, there would be not only much less sexual indulgence, but also very much less venereal disease. Bacchus is not only the greatest friend of Venus, but also of Mercury (and should I say Silver?).

Another Don't is not to tarry too long in the act, not to attempt to prolong it unnecessarily, and not to repeat the act unless another antiseptic douche has been taken. The man who has studied anatomy can derive some benefit from the knowledge that the two most dangerous, because most frequently infected points in woman are the urethra and the cervix. The vagina is very rarely infected. Having this knowledge he should guide himself accordingly.

As is seen, there is no royal road, no short cut, to venereal prophylaxis. Pronouncing a prayer or a shibboleth will not do it. Some care must always be exercised, some trouble cannot be avoided. But this is a small price to pay for freedom from venereal disease.

To summarize: In order to avoid venereal infection the genital organs must be kept in a clean, healthy condition. A condom of the best quality is up to the present day the

surest and simplest prophylactic. As, however, it interferes with the *voluptas* of the act, some men not being able to obtain an erection or ejaculation, other measures become necessary. They are: immediate urination after coitus, and instilling into the urethra a solution or a mixture of protargol or argyrol or a soft ointment of calomel. The K Packets and the Sanitubes are trustworthy and can be recommended. (As a protection against syphilis, which subject, however, does not belong in this book, the glans and prepuce should also be well rubbed in with a strong calomel ointment.) The woman should always take a douche of bichloride of mercury before coitus. Alcohol in any form is injurious and should not be indulged in before coitus, nor should the act be unduly prolonged. Following out these instructions, a man may be pretty certain of never contracting any gonorrheal urethritis.

CHAPTER XXII

THE MINOR COMPLICATIONS OF GONORRHEA

PHIMOSIS

Phimosis is a term applied to a condition of narrowing of the opening of the prepuce, so that it cannot be retracted, and the glans penis cannot be uncovered. The term is derived from the Greek *phimosis,* which means muzzling, from *phimos,* a muzzle. It is quite an appropriate term, for in many instances the glans is effectually muzzled, so that the mouth of the penis, the meatus, cannot be seen or approached, except with the greatest difficulty.

The condition of phimosis is often congenital, occasionally traumatic, and frequently the result of the venereal diseases: chancres, chancroids, and urethritis. It is with the latter variety of phimosis that we are principally concerned here.

This condition of phimosis is apt to supervene in patients whose prepuce is generally somewhat narrowed, and in cases of hyperacute urethritis. The inflammation and resulting edema infiltrate the prepuce to such an extent that it cannot be retracted. The urethral discharge and a few drops of urine after each act of urination accumulate behind the prepuce, and frequently produce a balanitis and a balanoposthitis. In severe cases the meatus itself be-

comes corroded by the accumulated discharge. The successful treatment of urethritis in the presence of phimosis, especially of some severe degree, becomes impossible, and that condition must therefore first be removed. And besides the glans itself is in danger of ulceration and even sloughing.

Treatment. Gentle measures are at first to be tried, and in 95 per cent. of cases they will succeed. If the patient can stay at home, he should soak the penis every hour, for fifteen minutes at a time, in a warm 25 per cent. Burrow's solution (Liquor Burrowi, 1 part, hot water 3 parts) or in a 1:1000 chinosol solution. He may at the same time inject some of the same solution beneath the prepuce. This will keep the glans clean and prevent the pus and urine from accumulating. If the patient cannot stay at home, he should wrap the penis, beginning with the glans, in bandages dipped in the just mentioned solutions or in lotio plumbi et opii. The bandage should be changed three to four times a day. Injecting some sterilized sweet oil containing half a per cent. of salicylic acid between the prepuce and the glans will also prove an aid in retracting the prepuce.

After the phimosis has been reduced, any pathologic condition that may be found, such as balanitis, ulceration, etc., should be treated by mild antiseptic applications, or cauterization. Anointing the glans with salicylic oil two or three times daily will act as a curative and also as a prophylactic.

If these measures for some reason or other fail to produce the desired effect—the prepuce may be thickly indurated, there may be a lot of smegma and concretions, or from ulceration the prepuce may have become adherent to the glans—

we must have recourse to operative measures. These measures are circumcision and incision. Circumcision in a state of inflammatory phimosis I only mention to condemn. Besides the almost unavoidable danger of the infection of the wound, the long time required for healing, the cosmetic effect is generally bad. It is hard to judge of the proper amount of tissue to remove, and the result is an ugly scar, with either too little or redundant tissue.

Of the incisions we have two kinds: either one dorsal incision or two lateral incisions. The dorsal incision has the advantage of being only one: it is better to have to deal with one wound than with two; the lateral incisions, which give us two flaps, an anterior and a posterior, have the advantage of giving us a more thorough access to the glans. The prepuce is washed thoroughly with a 1:3000 bichloride solution, and the same solution, or one somewhat weaker (1:5000) is injected abundantly, by the aid of a long pointed syringe, between the prepuce and the glans. The line of the incision—either one on the dorsum or one on each side—is infiltrated with a local anesthetic solution (cocaine, alypin, eucaine or novocaine; see formulas for infiltration anesthesia) and the cut is made with a bistoury or a pair of scissors. The cut wound is compressed with some gauze saturated in a 1:5000 bichloride solution until the bleeding has stopped. It is best not to put in any stitches, unless the bleeding makes it absolutely necessary.

When the acute condition has subsided, then circumcision may be performed.

PARAPHIMOSIS

Paraphimosis is the opposite of phimosis; it is a term applied to a condition in which the prepuce is caught behind the corona of the glans, at the coronary sulcus, and cannot be pulled forward over the glans. It surrounds the penis like a tight cord. This condition may become very dangerous, as the glans becomes puffy, edematous, cyanotic, and unless relieved may become gangrenous. It may also be extremely painful, and interfere with micturition. Fortunately most cases are easily reducible by the experienced physician. By digital manipulation alone, the glans penis may be so compressed as to squeeze out all the edematous infiltration and the blood, and then by anointing with some fatty lubricant the prepuce is easily slipped over. Or a narrow rubber bandage is wound tightly over the penis, beginning with the glans, and in a very short time the edema is reduced and the glans slips in.

In no case of paraphimosis within my experience have I had to have recourse to operative measures, though in some cases quite a good deal of manipulation was required before reduction was effected. But there are neglected cases, in which the patient has permitted the condition to exist for several days before he applies for medical aid, in which the strangulated tissues become plastically indurated; and passing the hardened edematous glans through the hardened infiltration of the constricting prepuce becomes an impossibility. The only thing to do is to incise the constricting band, in the median line, on the dorsum of the penis. Introduce a bistoury *flat* under the constricting band, then turn it and cut.

If when the patient comes to you, you find the glans strongly cyanotic, almost black, cold and turgid, and with diminished sensibility, then not much time should be lost. An attempt at reduction by manipulation should be made, but this failing, not much time should be lost before incising the constricting band.

After the reduction of the paraphimosis, the glans and the preputial cavity should be treated gently. Irrigation with a mild antiseptic solution, or the application of a mild antiseptic ointment, is indicated.

BALANITIS

Balanitis is an inflammation of the glans penis. It is derived from the Greek word *balanos,* which means acorn, and refers to the shape of the glans. It is often accompanied with, or is the result of, phimosis and paraphimosis, but may occur independently as the result of coitus with a woman having a nasty irritating discharge. Where the glans is simply inflamed, or covered with a whitish ointment-like secretion, we call it simple balanitis; where it is accompanied with ulcerations, we apply the term ulcerative balanitis.

The treatment consists in cleanliness, washing with hydrogen dioxide or 1 per cent. resorcin solution, applying compresses of chinosol 1:1000 solution, or bismuth subgallate powder, or an ointment of the following composition:

℞ Zinci oxidi 3ii
Bism. subnitratis 3i
Ac. salicylici .....gr. x
Petrolati albi .....℥i

When the inflammation is of a deeper grade, or is accompanied with ulceration, cauterization by means of a 5 per cent. silver nitrate solution or 5 per cent. copper sulphate solution may become necessary. It should be taken as a rule that on a circumcised glans we can use stronger solutions than on a non-circumcised one. In the latter case, edema with a consequent phimosis is apt to result.

Posthitis is an inflammation of the prepuce. (From the Greek, *posthē*—prepuce.)

Balano-posthitis is applied to an inflammation of both the glans and the prepuce.

The treatment of posthitis and balano-posthitis is practically the same as that of balanitis.

Here we have three affections—phimosis, paraphimosis and posthitis—which can be completely avoided by timely circumcision. Balanitis is also a much rarer and a much milder affection in the circumcised than in the non-circumcised. And he who has seen some severe cases of phimosis and paraphimosis—which threaten the very integrity of the male organ—will not have much doubt that the law-giver who ordained the circumcision of all male infants was also a pretty good hygienist. And the fact that more and more people, outside the Jewish and Mohammedan races, subject themselves to circumcision points to the conclusion that the hygienic utility of this measure is becoming universally recognized.

ADENITIS. LYMPHADENITIS (Inguinal adenitis. Bubo)

In severe cases of urethritis, particularly when the patient is obliged to do a good deal of walking and lifting,

the inguinal glands are apt to get inflamed and swollen. The complication is, however, not a very frequent one, and the swelling but very seldom proceeds to suppuration. It may be safely asserted that whenever suppuration does take place it is due to mixed infection. I have not had a single case of gonorrheal bubo terminate in pus formation.

The treatment is: Put the patient to bed, apply hot compresses of Burrow's solution for a few hours, afterwards apply a "resolvent" ointment.

One of the following ointments is satisfactory:

℞	Ung. hydrargyri	ʒij
	Guaiacoli	ʒi
	Ung. belladonnæ, q. s. ad.	℥i
℞	Plumbi iodidi	ʒi
	Ung. potassii iodidi	℥i

If the patient cannot go to bed, the same ointment should be thickly applied, covered with cotton and oiled silk, the whole held in place with adhesive plaster. The application of a few overlapping strips of adhesive plaster (without the ointment) over the swollen glands is also beneficial.

Lymphangitis or inflammation of the lymphatic vessels of the penis is rare, but does occur in superacute urethritis, and is to be treated by rest and cold compresses of diluted solution of aluminium acetate.

Spongeitis is inflammation of the corpus spongiosum, and cavernitis is inflammation of the corpora cavernosa. As complications of gonorrhea they are very rare. When they do occur, they are to be treated with compresses—hot or cold—of diluted aluminium acetate solution (1 to 3).

Periurethritis is an inflammation of the tissues surround-

ing the urethra. As a rule it is circumscribed and the abscess may point and open through the penile skin. If the abscess is not incised but allowed to burst, a fistula may remain. A fistula is more likely to be the result if the abscess is near the frenum.

Cowperitis is an inflammation of one or both of Cowper's glands. It may point and burst in the perineal region, on either side of the raphé, between the scrotal junction and the anus. It may be felt as a round swelling, the size of a pea to that of a hazel nut.

Treatment. When the mass feels indurated without any sign of fluctuation, all measures should be taken to prevent suppuration. The measures are: massaging and expressing the gland into the urethra (when its excretory duct is open), copious irrigations of the urethra with potassium permanganate solution (1:4000), rubbing in a resolvent ointment over the perineal region, or painting the latter with tincture of iodine, or applying to it two or three leeches. But when suppuration is present, or is inevitable, it is best to incise the abscess, irrigate it and drain it, as we thus avoid a troublesome perineal fistula.

PAINFUL ERECTIONS AND CHORDEE

It is natural that the congestion and irritation of the urethral canal should be the cause of frequent and prolonged erections. These are sometimes the bane of the patient and are the most disagreeable and most painful feature of his gonorrheal attack. While they are most frequent at night, they do occur quite frequently in the daytime, and they may be *exquisitely* painful. If frequent and persistent in the daytime, they put the patient in an embarrassing posi-

tion, so that he may find it difficult to attend to his work in the office, store or factory. In the nighttime the erections are frequently accompanied by pollutions, which are sluggish, the semen oozing out slowly, and the urethral inflammation being aggravated by them. The erections frequently aggravate the gonorrheal inflammation, and retard the cure. A vicious circle is established, as is so frequently the case in disease. The urethral inflammation causes the erections, and the erections aggravate the inflammation.

The term *chordee* is sometimes applied to these erections, but this is incorrect. The term chordee is properly applied only to erections accompanied by a *curving of the penis downward.* Sometimes the glans alone is pulled downward, sometimes the whole penis is arched in a semi-circle, almost. It is this variety of erection which is the most exquisitely painful, and is accompanied by slight hemorrhages, due to the stretching and tearing of the urethral mucous membrane. It is so painful that the patient in his agony—and in his foolishness—breaks it. That is, knowing of no remedy and unable to bear his suffering, he lays the penis on a table or a window sill and deals it a violent blow with the fist. It breaks the chordee, but it also breaks the penis, tears the urethra, and this is accompanied by bleeding—sometimes severe—and the formation of a stricture.

Treatment. This, as all other complications of gonorrhea (as well as of any other disease) should be prevented if possible, and the anodyne, demulcent, antiphlogistic remedies which we administer for the gonorrhea also act in the direction of preventing or diminishing painful erections, pollutions and chordee. But when these complications are present, we must use some additional measures. Dipping

the penis in hot water, as hot as can be borne, or water containing some lead and opium wash (solutio plumbi et opii 1 part, hot water 7 parts), or a warm sitz bath (100° F. gradually raised to 115° or 120°) for 5 to 10 minutes, act as a prophylactic. But when the erection or chordee is actually present, then dipping the penis in ice cold water, or wrapping it in an ice cold compress, or surrounding it with pieces of ice, is more efficient. A sixtieth of a grain (1 milligram) of atropine sulphate taken before going to bed is frequently quite effective in preventing any erections. Sometimes it is not. And then we have to give bromides, much as I dislike them. Potassium bromide is the most efficient, but only because it is the most depressant. And I like it least of all the bromides. I generally prescribe the strontium and sodium bromides—30 grains of each per dose. Less will hardly have any effect. The Burroughs-Wellcome effervescent tabloids of triple bromides make an agreeable form of administration, and are to be preferred when we have to deal with delicate stomachs. Lupulin, monobromated camphor and hyoscyamine are also efficient. Sometimes we must in addition to these also prescribe some morphine, but only in the form of a suppository. Here are the most efficient prescriptions for the purpose:

℞ Lupulini, gr. v
Camphoræ monobrom, gr. iij
Hyoscyaminæ hydrobrom, gr. 1/60
M.f. caps. No. 1. Tal. dos. xij
S. One before going to bed.

In obstinate cases an additional capsule may have to be taken an hour before going to bed.

℞ Morphinæ sulph., gr. ⅓
Ext. belladonnæ, gr. ¼
Ol. theobromæ, gr. xxv
M.f. suppos. No. 1. Tal. dos. vi. S. Insert one on going to bed.

RETENTION OF URINE

It does occur occasionally in the course of an acute urethritis that the patient finds himself unable to pass urine. This may be due to a sudden exacerbation of the inflammation in the posterior urethra, in the prostate, in the seminal vesicles, to an inflammation of Cowper's glands, or to the fact that the patient had from before a slight stricture. The inflammation and the edema around the stricture occlude the lumen of the urethra and make it impermeable to the urine. Not infrequently such a retention of urine occurs after the not too gentle passing of a sound or bougie or a forcible or too strong injection. Under the latter circumstances, the retention may also occur in the course of a chronic urethritis.

The treatment of this condition, which is very uncomfortable and if lasting too long may of course become dangerous, should be of the very simplest kind. A hot bath, the patient attempting to urinate in the water, is often effective. Keeping the penis in hot water may also prove effective. If these measures fail, the injection of a pint of hot water into the rectum generally succeeds. In attempting to pass the water from the bowel, the urinary sphincter also relaxes and the patient urinates. A good dose of fluid extract of hyoscyamus (5 to 10 minims!) is also useful. Where these measures fail, we must catheterize the patient,

using a soft catheter, well lubricated with warm sterile oil. The urethra should first be anesthetized with alypin and adrenalin. And I might add that the mere anesthetization of the urethra, by reducing the acute congestion, the strangury, and the fear of pain, will often make urination possible, and thus render catheterization unnecessary. If you do not succeed in passing a soft catheter, then you have a different case to deal with than a simple spasmodic contraction, an inflammatory edema or nervousness. And the case is to be handled like retention resulting from stricture, by passing a steel catheter, by gradual dilatation, by passing filiforms, or by puncturing the bladder, by means of trocar and cannula.

CHAPTER XXIII

ACUTE PROSTATITIS

Acute prostatitis is unfortunately a rather frequent complication of gonorrhea. There is a great difference in the opinions of venereologists as to the frequency of it, some putting it as low as 3 per cent., others as high as 92 per cent. This apparently absurd difference is really more apparent than real, some applying the term prostatitis to the mildest inflammation of the prostate, even of a catarrhal, transient character, others applying the term only to suppurative prostatitis and prostatic abscess.

If we apply the term prostatitis tc every mild congestion or inflammation of the prostate, then we might consider it a natural accompaniment of every case of posterior urethritis. If we apply the term, however, only to those cases which give decided subjective symptoms and are accompanied by an unmistakable enlargement of the prostate, then I would say that the frequency is about 20 per cent. I consider it absurd, however, to apply the term acute prostatitis only to those cases in which the prostate is severely suppurating, or to consider acute prostatitis synonymous with prostatic abscess as some do. Even a prostate which secretes pus in profusion is not a prostatic abscess. When the urethra secretes pus profusely we use the term urethritis and not urethral abscess. As long as the ducts of the prostate are open, so that the pus finds its way readily into the urethra,

we have no right to speak of prostatic abscess. It is only when the prostatic ducts become clogged so that the pus accumulates in the prostate, and there is perhaps destruction of tissue, that we have a right to speak of prostatic abscess.

I said at the beginning that prostatitis is unfortunately a rather frequent complication of gonorrhea. Of course every complication is unfortunate, but prostatitis is particularly so, because it is that complication which makes chronic gonorrhea one of the most obstinate, sometimes one of the most maddening, conditions to treat. Any gonorrhea in which the prostate is not involved is comparatively readily curable, for applications to the urethral canal are readily made and by the modern methods of dilatation-irrigation, and by massage, aided perhaps by vacuum treatment, we can lure the gonococci from their hiding places and destroy them, but once the gonococci penetrate the prostate then we have an entirely different condition to deal with. We cannot apply medication directly to and into the prostate, by no method of massage can we be sure to express every little subdivision and duct of the prostate, and I am sure that it was the infection of the prostate that made Ricord say that we knew when a man got gonorrhea but only the Lord knew when it would be over.

Besides the much more hidden and labyrinthine recesses which the prostate presents to the germs, the latter seem to find a richer soil in it than they do in the urethra and the urethral glands, and for this reason it becomes so hard to dislodge them. All those long dormant cases in which the man was free from any symptoms for years, a gonorrheal attack suddenly coming on after drinking or sexual inter-

course, are cases of prostatic infection. The prostate is the germ's best hiding-place, and just as epididymitis is the most important complication as far as the race is concerned, so prostatitis is the most important complication so far as the wife is concerned, for infection of the wife usually results not from an uncured urethritis but from an uncured prostatitis.

SYMPTOMS

The advent of acute prostatitis may be very gradual, so that the patient has practically no subjective symptoms, or perhaps only an aggravation of the symptoms caused by his posterior urethritis. He may feel greater discomfort in the perineum, a sense of weight and dragging down, difficulty in sitting, an inclination to walk with spread legs, etc. Or the attack may come on very violently. He will feel a terrible weight and heat in the rectum, become feverish, have perhaps a chill. In a severe acute prostatitis the temperature may go up as high as 103 or 104. The patient is constipated, and if he moves his bowels the pain may be excruciating. The urethral discharge, if it was present before, frequently stops entirely, though this is not so frequently the case as it is with epididymitis. Mere touching of the perineum is painful, while the pain caused by inserting the finger in the rectum and touching the prostate is unbearable.

The prostate feels hot, throbbing, hard, tense, and fills out the entire rectal cavity, sometimes to such an extent that defecation is not only painful but impossible in some cases. By sweeping the finger around the prostate you have ex-

actly the same sensation as in examining the vagina during labor when the child is at the outlet of the pelvis.

Besides difficult defecation, pain on urination, or partial and sometimes complete retention of urine, the pain is severe not only on pressure but is spontaneous, and the patient asks for relief, which in some instances can be afforded only by morphine. The pain instead of being located in the perineum and rectum may also radiate to the small of the back, to the glans penis, testicles and thighs. Instead of being uniformly enlarged only one-half of the prostate may be swollen, the other half being almost normal.

After lasting for several days in about the same condition, a prostatitis may pursue one of three courses. (1) It may end in complete resolution; (2) it may end in an abscess; (3) it may pass gradually into chronic prostatitis. Neither the first nor the second termination is very common, the most common one is the third.

TREATMENT

Put the patient to bed. As a rule we find him there, but if we do not we should make him go there. Local treatment of the urethra should be stopped, though this is not so imperative as it is in epididymitis. The internal treatment on the contrary, however, should be continued. Unless the patient is so sick that his stomach cannot stand anything, the santal oil preparations should be continued. They diminish the dysuria, render the urine bland, and have apparently a beneficial effect on the prostatitis itself.

Magnesium sulphate, in dram to two dram doses four times a day, should be given regularly. This prevents con-

stipation, has a beneficial effect on the fever and the toxemia. If the fever is above 101 or 102 and there is severe headache, I invariably give some of the synthetic antipyretics, such as aspirin, phenacetin, antipyrin or pyramidon. These not only have a symptomatic effect in reducing the fever, relieving the headache, and making the patient feel altogether more comfortable, but they also diminish the pain in the prostate and materially shorten the course of the disease. In severe cases of prostatitis we can but ill get along without any antipyretics. If the pain in the prostate is so severe that the patient is unable to sleep, restlessly tossing about day and night, we are forced occasionally to give a hypodermic of morphine, though I prefer to give the morphine in the form of suppositories, as follows:

℞ Morphinae sulphatis ..... gr. $\frac{1}{3}$
Ext. belladonnae ..... gr. $\frac{1}{3}$
Ol. theobromae ..... gr. xx

Less than a third of a grain of morphine has no effect on a real case of acute prostatitis which demands an anodyne.

Leeches to the perineum are favored by many physicians and frequently give immediate relief. I believe, however, that we can get along without them. Ice to the perineum is comforting and not injurious. When it comes to rectal douches, however, I prefer hot water to cold. The resolution seems to be brought about more rapidly by the use of heat than by the use of cold. It is true that when a prostatitis is to terminate in an abscess the hot water enemas or applications by means of the psychrophore will hasten this often, but this is no misfortune, for if an

abscess is to take place and to break, the sooner it is done the better. The hot water to the prostate may be applied as an ordinary enema, about 6 ounces, containing 10 drops of laudanum and 10 grains of antipyrin, being injected and retained for about ten minutes; or it may be applied by means of the rectal psychrophore, hot water being circulated for about ten minutes.

Suppositories of mercurial ointment and ichthyol have often been recommended and used, and I have used them many times myself, but they irritate the rectum badly, sometimes very badly, and the benefit derived from their use seems to be too small to outweigh the damage. I have therefore given them up altogether, and the only suppository that I use in acute prostatitis is the following:

℞ Iodoformi ..... gr. ij
Antipyrini ..... gr. v
Morphinæ sulphatis ..... gr. ¼
Ol. theobromae ..... gr. xx
Sig. One 3 times a day.

The morphine of course has a tendency to constipate, but this is overcome by the magnesium sulphate which is administered through the course of the disease.

Some of our German colleagues advise starting with massage as soon as the hyperacute symptoms have subsided. I am opposed to it in any stage of acute prostatitis, as it may produce an exacerbation of the trouble or may set up an epididymitis. Massage of the prostate is distinctly a measure reserved for chronic conditions of the gland. Of course if there are boggy, fluctuating places in the prostate which on gentle pressure produce a discharge of pus into the

urethra, such expression may be performed, but this is really a different procedure from what we ordinarily understand by massage. If by gently pressing the prostate we are able to express pus into the urethral canal we should do it twice or three times a day, following this procedure by a very gentle irrigation with 1-4000 potassium permanganate or 1-1000 silver nitrate.

PROSTATIC ABSCESS

If prostatitis is to terminate in an abscess all the symptoms we described become aggravated. There is a great elevation of temperature, though some prostatic abscesses without fever have been described. There is a great increase in the heat, pain and throbbing of the prostate. There is excruciating dysuria, headache, thirst, dry throat, and there may be complete retention.

The prostate may break into the urethra, or into the rectum, or into the perineum. Sometimes it breaks in both directions, into the urethra and the rectum or perineum, thus forming a urethral or urethro-rectal fistula. When the abscess breaks spontaneously into the urethra there is a great gush of pus, generally mixed with blood, and this happy event is followed by almost immediate diminution of all the symptoms.

If the abscess does not break within a day or two and the fever goes up high, the best thing to do is to incise the prostate through the perineum. But if the prostate points into the rectum and there is a distinct fluctuating mass felt by the finger, then it is best for the physician to incise the prostate through the rectum.

The rectum may be irrigated with an antiseptic or simple

saline solution until it is absolutely free from any fecal matter, then a bistoury is plunged directly into the fluctuating mass, and the prostate is expressed as much as possible. The healing is less troublesome than when the incision is made through the perineum, and this method will be the one which the general practitioner will choose.

As we said before, an acute prostatitis may end in two or three weeks in complete resolution, so that there is apparently no sign left of the inflammation. As a rule, however, the symptoms subside gradually and the acute prostatitis passes over into subacute or chronic prostatitis, the discussion of which will be taken up in the next chapter.

CHAPTER XXIV

CHRONIC PROSTATITIS

Chronic prostatitis is a very common condition. In a greater or lesser degree it is present in a very large percentage of the male population of every civilized country.

Causes. One of the most important factors in the etiology of chronic prostatitis is gonorrhea, but gonorrhea does not play the same relative rôle in the causation of chronic prostatitis that it does in the causation of acute prostatitis. In the latter gonorrhea is by far the principal factor; other causes play but a subordinate rôle. This is not so in chronic prostatitis; while, as we said, gonorrhea does play a very important rôle, other factors are also of great importance. Among those factors we may enumerate chronic urethritis of whatever origin; masturbation; sexual excesses (that is, too frequently repeated natural sexual intercourse); coitus interruptus; complete abstinence, particularly if accompanied with excitation, mental or physical, without gratification (it is remarkable how the over-use, abuse, or non-use of a function frequently leads to the same result); a steady, long-continued sedentary life; catheterization; stricture; and long-continued cystitis.

A chronic prostatitis following a gonorrhea, or other forms of urethritis, may be chronic from the very start or it may be the end stage of an acute or sub-acute prostatitis.

Symptoms. The symptoms of chronic prostatitis may vary from the mildest to extremely severe. There are cases of prostatitis which are symptomless, or practically symptomless, and there are cases which assume the character of a very serious malady.

It might be asked how we know that a man has prostatitis if it gives him no symptoms whatever. Of late years a good many men before getting married, or even before becoming engaged, come to the physician for a sexual examination. They tell him that they feel all right in every way, that there is absolutely nothing the matter with them, but that they want him to make sure that they are all right. Some of them may have had a gonorrhea, some of them have absolutely no venereal history. In a certain percentage of these men who complain of no symptoms whatever we find on examination distinct evidences of prostatitis. The prostate is either enlarged and "boggy," or only boggy, and on expression we obtain a fluid which gives unmistakable evidences of a mild grade of inflammation.

Pathologically, the condition in the prostate may vary from a simple congestion to an extensive suppuration. In the majority of cases, however, the symptoms of prostatitis are pronounced, and may be classified as local, sensory, urinary, sexual, and general nervous

The *local* symptoms are those that we discover by an objective examination. The prostate is usually enlarged, soft, boggy; either soft throughout or soft in some spots and hard and nodular in others, more than normally sensitive on pressure, and exudes a turbid lumpy secretion on expression.

The *sensory* symptoms are heaviness and a dragging sen-

sation in the perineum, pain in the prostate and perineum, and pruritus ani or itching around and within the anus. The patient cannot sit comfortably for any length of time in one place and likes to shift his position. A symptom that can be frequently observed by the careful observer is that the patient when sitting down will sit on the edge of the chair, and if the chair permits it, on one buttock only. Walking is less annoying to him than sitting or standing. He feels most comfortable lying down. While the pain may be limited to the prostatic region, it may, as is easy to understand with an organ so rich in nerves as the prostate, radiate to various parts of the body, to the testicles, urethra, penis, thighs, and small of the back. The pain may also radiate to the kidneys and simulate the pain of renal colic. Personally, however, I have not seen such cases; in renal colic the pain is too acute, too sharp, to be mistaken for the dull, gnawing pain of prostatitis. Still some authorities claim to have seen such cases.

A very frequent and most annoying symptom is a leaden heaviness in the calves of the legs, and also a burning in the soles of the feet. These symptoms make themselves particularly noticeable in the afternoon, around four o'clock. I have been able to diagnose prostatitis in a great number of cases from these two symptoms alone. With the cure of the prostatitis these symptoms disappear.

The Urinary Symptoms.—One of the most common symptoms is the *frequency* of urination. The patients may have to urinate every two hours or every hour, and if they happen to drink some irritating liquid like beer, may have to urinate every fifteen or twenty minutes. They also have to get up in the night from one to four times. Another

symptom is the urgency of urination. There is a difference between frequency and urgency. A person may feel like urinating frequently, but if he is unable to urinate at a certain time it may cause him no effort to retain his urine; in the case of urgency, however, when the desire to urinate comes on it must be complied with instantly or the patient is apt to wet his underwear. There is a disagreeable, perhaps scalding, sensation on urinating, and there is dribbling of urine after the act. The size and character of the stream is often unaffected, though as a rule it is smaller than usual. The urine itself is frequently turbid, and contains many bacteria and a large amount of phosphates; in fact, *phosphaturia is one of the most common symptoms in prostatitis.* Whether it is a direct result of the prostatitis or whether it is caused by the nervous condition induced by the prostatitis is an open question.

The *sexual* symptoms are briefly summarized in imperfect erections and premature ejaculations. The libido may be diminished, but as is so often the case whenever any irritative condition exists in the prostate, may be greatly increased, causing the patient to indulge to excess, thus still further aggravating his condition.

The *general* and *nervous* symptoms produced by an irritated or inflamed prostate are literally legion. First there is a general irritability, a physical and psychic irritability. The patient responds much more quickly to external stimuli, such as changes in temperature, and he gets very easily upset over little things. Then there is a general depression. This depression expresses itself not only in a lack of desire for work and a lack of interest for things, but in a general despondency. The patient may occasionally become deeply

melancholic, and this to such an extent that he may harbor suicidal ideas. If the condition lasts long he may become a victim of sexual neurasthenia, with its legion of symptoms, but to discuss the latter here would lead us too far and we must refer the reader to special books on the subject.

TREATMENT

While prostatitis, as we have seen, may be a serious complication, giving rise to numerous annoying symptoms which make the patient wretched, diminish or destroy his usefulness, and may even lead him to suicide, there is one bright feature about it, and that is that it is very amenable to treatment.

While we may not change the secretion in a suppurating prostatitis to such a degree that it does not contain a single pus cell, still practically all cases of prostatitis (and it is quite safe to leave out the word practically) may be improved to such an extent that they will give no symptoms and the patient will not be aware of their existence.

The treatment of prostatitis, as of all diseases of the genitourinary organs, is both general and local. The patient must guard against constipation. The diet must be bland, strong spices and condiments being eschewed, alcoholics must be reduced to a minimum, and everything must be done to raise the general condition of the patient from below par to par or above par. Cool baths and douches are useful for the general system, but hot sitz baths are necessary for the prostatic condition. It goes without saying that any pathological condition in the urethra, such as a posterior urethritis, or a stricture, or colliculitis, or a seminal vesiculitis, must be treated concomitantly.

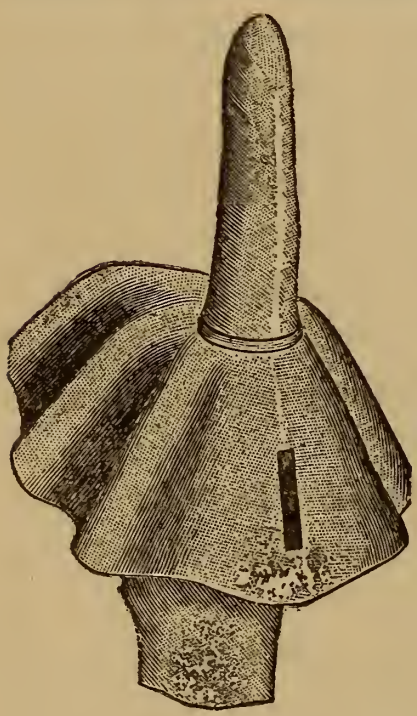
Prostatic Massage. There is one measure, however, which is more important in the treatment of chronic prostatitis than all other measures combined, and that is massage of the prostate.

It is quite remarkable what rapidly beneficial effect a massage of the prostate will produce on the patient's condition, both local and general. It constitutes one of the most gratifying methods of treatment in the venereal specialist's work. Without the patient being told what the massage was for, what it was expected to accomplish, he will either at once or at the next visit volunteer the statement that he felt immediately better, that not only did he feel an improvement within the rectum and perineum, but he felt generally better. In fact, even a mere examination of the prostate, in which you sweep the finger around the gland to determine its contour, size, and consistency, and in which you do hardly any expression, produces a beneficial effect. There is no exaggeration in saying that the effect of prostatic massage is often simply marvelous.

While we are more interested in facts and in the effects of certain treatment than in the explanations of the why and wherefore, still the reasons for the strikingly beneficial effect of prostatic massage have always been of great interest to us. And while we can pretty well explain the rationale of its action, further studies on the subject are certainly in order. Some reasons of this beneficial action are self-evident. Where the prostate contains a large amount of catarrhal or purulent stagnant secretion, the mere mechanical removal of this mass, which diminishes the size of the organ, relieving pressure on neighboring organs and nerves, is beneficial. Then the massage itself and the re-

moval of the secretion improves the circulation in the prostate and in the periprostatic veins and lymphatics. It tones up its musculature so that new blood reaches its various recesses, and its tissue, as well as its numerous nerve plexuses, become better nourished.

Technique of Massage. The way to perform massage properly and effectively is to have the patient, standing with his legs well apart, bend over a chair or the examining table, firmly supporting himself with both hands. The index finger of the gloved hand, over which an extra finger-cot may be put on, well anointed with petrolatum (for rectal examinations I prefer petrolatum to the water soluble lubricants), is introduced gently into the rectum and the prostate is gently but firmly massaged, first from the right side toward the median line, then from the left side toward the median line, then a few firm, pressing strokes are made from above downward. Special pressure is applied to any indurations that may be encountered, or to any specially soft spots.



Special Finger Cot for Massaging the Prostate.

When the massage is completed the patient is told to get up gradually and slowly from his stooping position, and is given a glass to urinate in. The urine washes away the prostatic secretion.

This is for ordinary cases where there is little discharge,

and that chiefly catarrhal. But where there is much discharge and of a purulent character, it is best to have the patient urinate first, then fill his bladder with a 2 per cent. boric acid solution, then massage him, then tell him to urinate, and after he urinates it is well to instill into the bladder a dram or two of a 1-1000 solution of silver nitrate, instilling a few drops of the same solution throughout the urethra. This is to prevent any infection from the prostatic secretion.

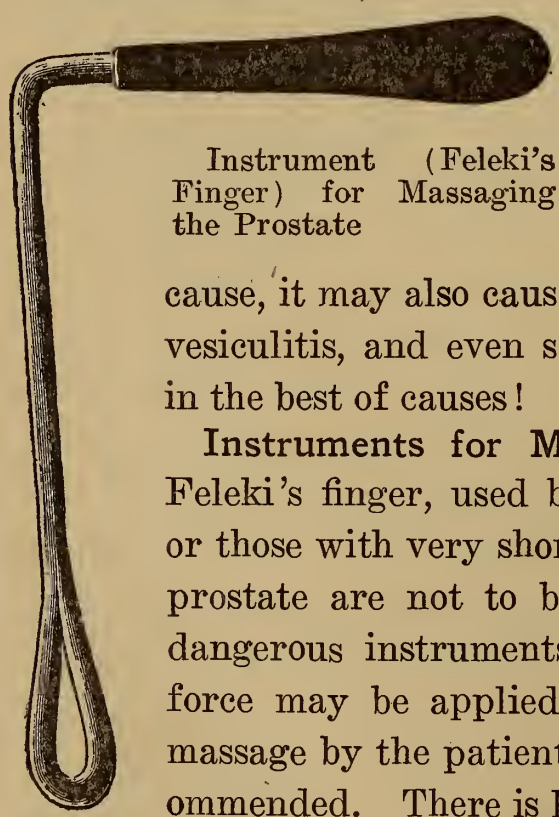
Massage in the Horizontal Position. Some physicians perform prostatic massage with the patient lying on his back, or even on his side. I am opposed to this position, because it is much more unsatisfactory than the standing-stooping position. The finger can never reach quite as far with the patient lying down as with the patient standing up and pushing his prostate against the finger. Nor can the physician's finger ever get such a leverage with the patient in the horizontal position as when the patient is standing. For the mere purpose of examination the recumbent position may be sufficient, and when the patient is of an extremely nervous temperament, subject to fainting spells, that position must sometimes be chosen, but it is never the position of choice, and we can never be sure of giving the patient a thoroughly satisfactory massage in that position. Another point, perhaps not of so much importance, but still of some importance, is that when the patient is stooping down, the secretion, through gravity, has a tendency to run out of the urethra; in the recumbent position it is sure to flow back into the bladder.

Abuse of Prostatic Massage. There is no therapeutic procedure, beneficent as it may be, that cannot be abused or

overdone. This is true of massage. Useful as it is, much damage may be done by it if it is performed too brutally or too frequently.

There must never be a digging of the finger tips into the prostate; there must be only a pressure with the entire palmar surface of the finger. Too much force must not be used, or the inflammation instead of being allayed may be increased in severity, or even necrosis may be caused. Nor must the massage be performed too frequently, but here no dogmatic statement can be made as to what constitutes frequency. Some patients can stand massage every other day, some only once a week or once in ten days.

Massage must not be performed when there is acute inflammation in the prostate or an acute exacerbation of a chronic inflammation.



Instrument (Feleki's Finger) for Massaging the Prostate

Besides the aggravation in the condition of the prostate itself that the too frequently or too brutally performed massage may cause, it may also cause an epididymitis, a seminal vesiculitis, and even sciatica. Not too much zeal in the best of causes!

Instruments for Massage. Instruments, like Feleki's finger, used by inexperienced physicians or those with very short fingers, for massaging the prostate are not to be recommended. They are dangerous instruments, as unwittingly too much force may be applied in using them. For self-massage by the patient, however, they may be recommended. There is little danger that the patient

may use too much force; the pain will prevent him. Self-massage is performed by the patient while lying on his back, undressed. He inserts the instrument, warmed and well lubricated with petrolatum, into the rectum and moves it up and down, pressing gently on the prostate, for a few minutes. This may be repeated three times a week or even daily.

A Few Minor Points. 1. Some patients come to the office with full recta, the feces pressing on the prostate. This not only makes it unpleasant for the physician, not only interferes occasionally with the proper performance of the massage, but induces in the patient a desire to defecate. Such patients should be told always to empty their bowels before coming to the physician's office. If they cannot do it spontaneously they should take an enema.

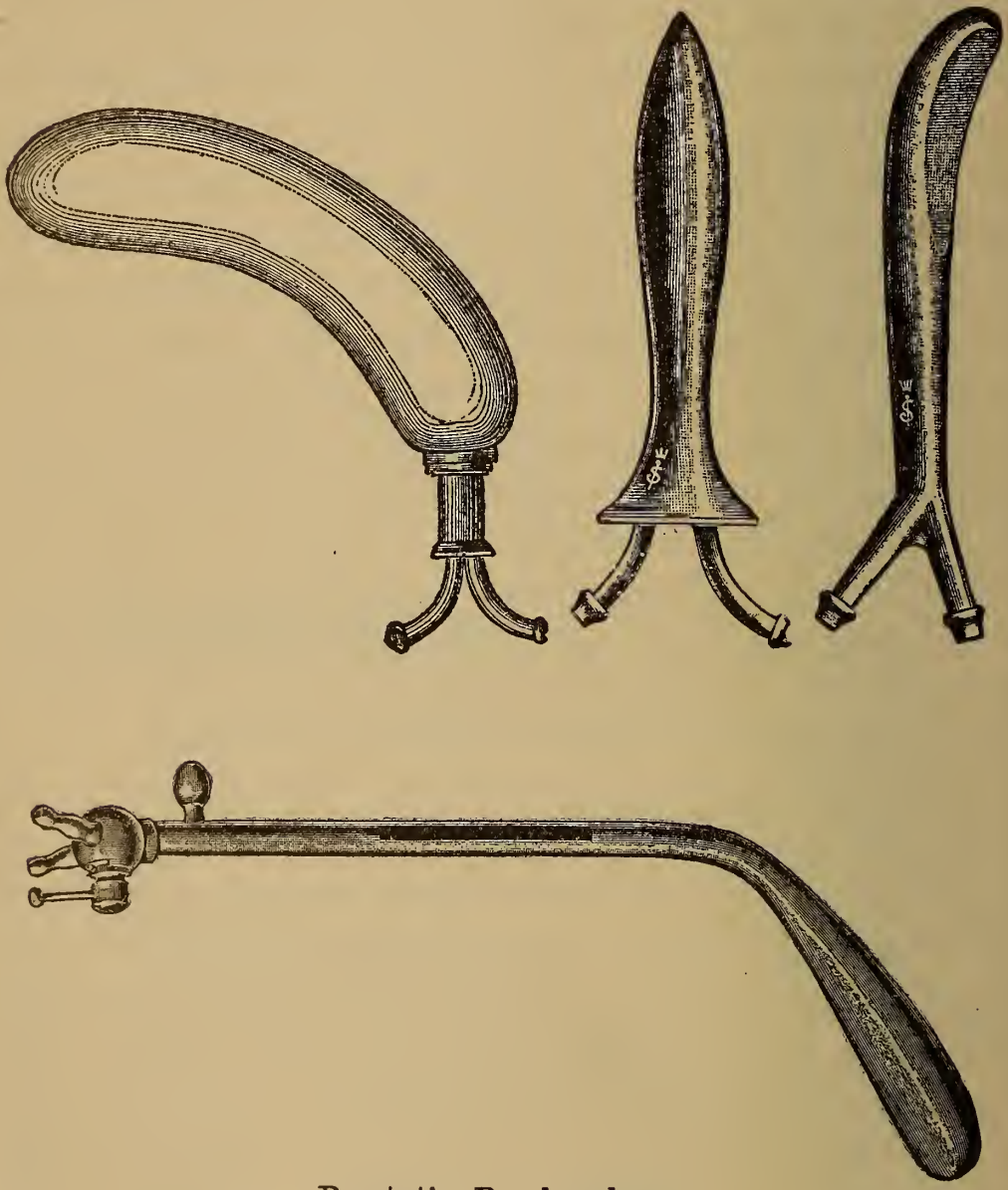
2. Where the secretion from the prostate is so profuse as to run from the urethra, the patient is instructed to support himself with one hand only, holding in the other hand a small glass under the penis to catch the secretion.

3. Be on your guard and watch your patient very carefully when giving him the first massage, for some patients faint after the first massage. Let the patient get up from his stooping position very slowly, make sure that he is not pale, and that he has no sensation of fainting. If he complains of a sense of weakness the best thing is to lay him down on the examining table or couch for a few minutes.

4. In some obstinate cases of prostatitis I have found the introduction of a potassium iodide-iodine suppository (see No. 2 of the formulas below) followed by a gentle massage for 5 to 7 minutes very beneficial. The massaging apparently causes a much greater absorption of the K I

and iodine than a mere introduction of the suppository.

Hot Rectal Douches. Another useful measure, but altogether secondary to massage, is the application of hot water



Prostatic Psychrophores

to the rectum by means of one of the numerous prostatic psychrophores. This may be done two or three times a day for about fifteen to twenty minutes each time. The

psychrophore is best given into the patient's own hands and he is shown how to use it.

The hot rectal tube applied for about fifteen minutes before prostatic massage makes the latter more efficient, permitting us to express the secretion more readily. Suppositories of various composition, the formulas for which will be found below, also form occasionally a useful aid in the treatment. A morphine and belladonna suppository inserted by the patient before he comes to the physician's office is useful in allaying the irritability and making the prostate less sensitive, and thus permitting us to manipulate it more efficiently than we otherwise could.

℞ Iodoformi, gr. i
Morph. sulph., gr. ¼
Ol. theobromæ, gr. xxv
M.f. supp. No. 1. Tal. dos. xij
Sig. One t. i. d.

℞ Potassi iodidi, gr. ij
Iodi puri, gr. ¼
Morph. sulph., gr. ⅙
Ol. theobromæ, gr. xxx

℞ Ichthyol, gr. ij
Potassii iodidi, gr. iij
Morph. sulph., gr. ¼
Ol. theobromæ, gr. xxx

℞ Bism. iodo-resorcin-sulphonatis, gr. ij
Zinci oxidi, gr. v
Ol. theobromæ, xxv

℞ Antipyrini, gr. v
Sodii iodidi, gr. iij
Ol. theobromæ, gr. xxx

℞ Morph. sulph., gr. ¼
Ext. belladonnæ, gr. ⅙
Ol. theobromæ, gr. xxx

Where a psychrophore and the apparatus necessary to run a current of hot water are not obtainable, the patient may inject into the rectum 6 to 8 ounces of hot water, as hot as he can bear it, and retain it for about ten minutes. Instead of hot water a saline solution, or a saline solution with 5 grains of antipyrin and 5 grains of laudanum, is often

preferable. It is, however, well to bear in mind that some recta cannot bear repeated hot-water injections without severe irritation, and they cannot be continued for any length of time. The rectal psychrophore, however, can be borne without irritation.

ATONY OF THE PROSTATE AND PROSTATORRHEA

There is a condition of the prostate which deserves consideration by itself, under a separate subdivision. It is not an inflammation of the prostate and no inflammatory products are contained in its secretion, but the whole prostate seems to be relaxed, atonic, and this condition is best described as atony of the prostate. Its ducts are dilated and on mere touching of the prostate with the finger a large amount of prostatic secretion oozes out from the urethra. The secretion may be quite normal or somewhat catarrhal in character. The symptoms of atony of the prostate, however, are the same as of the other forms of prostatitis, except that the sexual features are more markedly exaggerated. Particularly is premature or precipitate ejaculation a prominent symptom.

Prostatorrhea is simply a further stage in the development of prostatic atony. In prostatic atony the application of the finger produces a discharge of secretion, in prostatorrhea the prostatic secretion runs out spontaneously or at the end of micturition (prostatorrhea mictionis) or after defecation (prostatorrhea defecationis).

The treatment of atony of the prostate and of prostatorrhea is in general the same as of the other forms of prostatitis. Massage plays here the same important rôle. But

instead of hot-water irrigations or applications, cold water is of more benefit. And it is also in this condition that faradization with the prostatic electrode in the rectum and the other electrode over the symphysis is very useful.

CHAPTER XXV

EPIDIDYMITIS

Epididymitis is an inflammation of the epididymis. It is one of the most frequent, most serious, and at the same time most preventable of all the complications of gonorrhea. It is in fact a complication that, under proper management, should not happen. And if it does happen rather too frequently in the practice of a physician, we can be quite certain that it is the physician who is at fault and not the disease. Strong injections, prolonged irrigations, meddling with the urethra, passing instruments in the superacute stage, overzealous massage of the prostate, are undoubtedly causes of epididymitis. When I hear a physician assert, or I see one make the statement in print, that epididymitis is a complication in thirty per cent. (!) of all cases of gonorrhea, I cannot help thinking that there is something wrong with his method of treatment. Of course the patient is very frequently at fault; for by walking, lifting, working, dancing, drinking, indulging in sexual intercourse, straining at stool, using injections forcibly, etc., in short by doing things he should carefully avoid, he himself brings about this painful complication, which is so dangerous to the perpetuation of the race. And while we are at this point, we may state that it is epididymitis that renders gonorrhea in the male a social, a racial disease. Were there no such complication as epididymitis, gonorrhea would be nasty, painful, danger-

ous, but it would be an individual disease. But on account of epididymitis, which renders thousands and thousands of men sterile, thus endangering the perpetuation of the human species, the gonococcus acquires the dignity of a racial poison, and gonorrhea that of a racial disease.

One of the first things the physician has to bear in mind, therefore, when treating a case of acute gonorrhea—and also chronic for that matter—is to *avoid* everything and to prohibit everything that may be conducive to this complication. Some cases will occur in spite of the utmost care. You cannot forbid the gonococci to penetrate into the vas deferens and then into the globus major or minor of the epididymis. But these unavoidable cases should not be more frequent than two or three in the hundred. In the last nine years I have not had a single case of epididymitis of my own making, and I have treated plenty of cases of acute and chronic urethritis, which goes to show that with care and common sense you can avoid many complications.

SYMPTOMS AND COURSE

When a man has epididymitis, he knows it. Sometimes he knows it several hours before he has the epididymitis, by a severe pain in the groin. The pain in the groin is particularly severe when the spermatic cord is involved in the inflammation. As the swelling of the epididymis proceeds, the pain gets more intense and the patient can walk only with great difficulty. There is a general feeling of malaise (this feeling may precede the actual development of the epididymitis by several hours), there is fever, which may go up as high as 104° F., and the patient feels undoubtedly sick. Sometimes you do not have to tell the patient to go

to bed; he is unable to do otherwise. In milder cases the patient may be able to walk about, but each step is accomplished with pain, and with a terrible feeling of heaviness and dragging down in the scrotum. Quite frequently the patient, if of what we call a nervous temperament, shows a tendency to faint. Occasionally he feels as if he had been hit in the stomach, is nauseated, vomits, and in some cases there may be convulsions.

In acute gonorrhea the onset of an epididymitis generally takes place in the second or third week, but it may occur as early as the first week or as late as the sixth. When it is due to rude instrumentation, to forcible injections, or to the patient's carelessness in lifting, dancing, etc., it may take place at any time.

Epididymitis is usually unilateral, but in a large number of cases it is bilateral. The swelling of both epididymes, however, rarely occurs at the same time; usually one epididymis swells a few days before the other. It used to be thought that epididymitis is more common on the left side. This, however, is not so. In my own practice I have seen quite as many cases of epididymitis of the right testicle as of the left; and careful researches of other investigators give the same conclusion.

Whether epididymitis occurs by direct extension of the inflammation from the posterior urethra or prostate, etc., or whether it occurs by microbic invasion, or whether it may occur through the lymphatics, is of little importance, and I have taken little interest in the discussions pertaining to this question. In my opinion it may occur in any of the three ways. The principal thing is to know that it occurs and to know how to prevent and to cure it. The method

of its origin does not influence its prophylaxis or treatment.

A very peculiar phenomenon, which is present in almost every case of epididymitis, is the complete cessation of the urethral discharge as soon as the epididymis swells. The discharge may be ever so profuse, it almost invariably stops with the establishment of this complication. Sometimes it stops several hours before. When the epididymitis subsides or is cured, the discharge starts up again. The rationale of this phenomenon has puzzled urologists for many years, and is still puzzling us. The most likely explanation is that the high temperature (104° F. or 40° C.) either destroys or deadens the gonococci. This explanation would leave nothing to be desired, but for the fact that the cessation of the discharge also takes place in cases in which there is a very slight elevation of temperature. In its favor is the fact that a gonorrheal discharge also often stops in systemic diseases accompanied by high temperature.

The usual duration of epididymitis is one to three weeks. It is, however, to be borne in mind that a not completely cured epididymitis, a nearly cured epididymitis, is very liable to relapse; and if a patient begins to work or walk about before he is completely cured of the acute attack, or if injections and instrumentation are started, a recurrence is very likely, and then the epididymitis may last, with greater or lesser severity, for two or three months.

Gonococcal epididymitis very rarely ends in suppuration, much more rarely than an epididymitis due to infection with other bacteria. But there is one legacy that a gonococcal epididymitis leaves much more frequently than other kinds do, and that is an induration of the globus major or globus minor of the epididymis, with partial or complete occlusion

of the lumen of the vas deferens. And if this condition occurs in both epididymes, the patient becomes sterile. In fact it is very seldom that a gonorrheal epididymitis heals so smoothly as to leave absolutely no induration. Very often the hardening in either the globus major or the globus minor remains with the patient through life, and by feeling it we can know absolutely that the patient has had gonorrhea ten or twenty or thirty years before, when there are no other symptoms to indicate it. Of patients who suffered with unilateral epididymitis, about 20 per cent. are sterile. Of those who had bilateral, from 40 to 45 per cent. remain sterile. This is natural and easy to understand.

But there is one phenomenon that requires a little discussion: People who have had several attacks of double epididymitis are less apt to be sterile than those who had one attack. The reason is not difficult to understand. When a man has had a double epididymitis just once and never had a recurrence, it can be readily assumed that the lumina of his vasa deferentia are completely clogged up, so that no gonococci can penetrate them; in short, the way is completely blocked. People who have recurrent epididymitis show by this fact alone that their vasa deferentia are permeable to a certain extent to noxious agents, and so permeable the other way to spermatozoa. It is also quite likely that a recurrent attack, in subsiding, causes the resolution or absorption of some of the inflammatory products of the first inflammation, and this causes the previously obstructed lumen to become permeable. I have had two very instructive cases in brothers, which will be found reported later on.

TREATMENT

The first and most important thing is to put the patient to bed. As stated before, in many cases the physician does not have to, because the patient is unable either to sit or to stand. Even in cases in which the patient is able to walk, he ought to be put to bed, for an apparently mild epididymitis may in a few hours become a very formidable one, and it is just the walking and being about that may change it from the former into the latter We know that there are cases in which it is impossible for the patient to go to bed; by doing so he may risk losing his position, his bread and butter. There we have to do the best we can, but that does not mean that it is right. The patient simply chooses what is to him the lesser of two evils, but this choice has not the sanction of medical science. It is only too often that medical science finds itself opposed by economic conditions, and under our present economic system it is the patient's economic condition that conquers. But medicine must not cease to protest, and it must keep up this protest until such time as the dicta of medicine shall be supreme, both in the prevention and the cure of disease.

So, then, the patient is put to bed and the testicles are elevated. To accomplish this in the simplest manner, we put a broad strip of adhesive plaster across the patient's thighs, close under the scrotum, and on this plaster the scrotum rests comfortably as on a shelf. The scrotum and the thighs are shaved. This makes the removal of the plaster easier and less painful, while the removal of the hair from the scrotum permits the applications that we are to order to penetrate more readily and thus to act more

efficiently. The relief, which the patient experiences on the testicles being raised, is remarkable. Not only the sense of "sickness" and faintness disappears, but every sensation of pain is usually gone also. To prevent the scrotum and perineum from sticking to the upper edge of the adhesive plaster, that portion of the plaster which comes in contact with the scrotum has to be folded over with another piece of adhesive plaster, or a gauze pad may rest under the scrotum.

Instead of the adhesive plaster we may use as a makeshift a cigar box wrapped in several thicknesses of flannel or toweling. This is put between the patient's thighs and the scrotum rests on it.

Having raised the testicles, the question arises, what application are we going to use, hot or cold? It is quite true that the cold application, and even an ice bag, very frequently gives the quickest relief. Nevertheless I am not in favor of them, because I cannot get rid of the impression that induration, with its subsequent sterility, is more common in cases in which ice cold applications have been used. I therefore prefer frequently changed hot applications. My preference is for large gauze compresses wrung out of a hot solution of aluminum acetate containing some glycerin:

℞ Liquoris alumini acetatis, }
Glycerini, ... } ..... āā ℥viii;
Aquæ, ... Oj.
M. ft. mistura.

The compress is to be covered with oil silk and, if the patient must be up and about, the whole put into a well

fitting suspensory bandage. The compress should be wrung out of the hot solution every hour.

These applications have a decided effect in reducing the swelling and moderating the pain, and if continued for several days have, in my opinion, a decided effect in preventing any permanent induration in the epididymis.

The application of compresses is very troublesome, as it requires a special nurse, and we therefore must sometimes get along altogether without them, or after using them for twelve to twenty-four hours we change off to ointments. A good ointment properly applied is also very beneficial. My favorite formula is:

℞ Unguenti hydrargyri, ...3ii,
Guaiacolis, ...
Ichthyolis, ... āā 3j;
Unguenti belladonnæ, ...ʒss;
Adipis benzoati, q. s. ad .....ʒii.
M. Sig.: Apply externally twice or three times a day.

Very delicate patients are sometimes hypersensitive to guaiacol. I have seen it bring on a condition very near collapse. Where the patient is very young and delicate, I therefore frequently replace the guaiacol with methyl salicylate.

Again, there are cases, where the foregoing ointment cannot be prescribed for an apparently trivial, but to the patient all important reason: it soils the underwear and the bed linen. In such cases the following ointment will be found very useful:

℞ Hydrargyri ammoniati, ...3ss;
Methylis salicylatis, ...3j;
Morphinæ sulphatis, ...grs. iv;
Atropinæ sulphatis, ...gr. j;
Adipis lanæ, ...℥ss;
Adipis benzoati, ...℥j.
M. ft. ung. S. Apply externally three times a day.

The diseased testicle, with its epididymis, is drawn down so that the scrotum is tense over it; the ointment is gently but thoroughly rubbed in; some is then spread thickly on a layer of cotton, in which the testicle is enveloped, some oiled silk is put over it, and the whole is kept in place by a few turns of a gauze bandage, or a well fitting suspensory bandage may be used. At first this ointment is to be changed twice or three times a day, but later a good application of it once in twenty-four hours is sufficient.

One other useful method of dealing with the testicle may be mentioned. That is the injection of colloidal silver (collargol or electrargol, the latter being preferred by Hamonic and Asch, as being in a finer state of subdivision) directly into the epididymis. I have tried it in a few cases and the results seemed favorable. No anesthetic is necessary, but one of my patients fell in a dead faint, from which it took him two or three minutes to come out. The skin over the epididymis is made tense, painted with iodine, and the sharp fine needle is plunged directly into the globus major or minor, whichever happens to be the most affected part. My usual treatment has proved so uniformly successful in my hands, however, that I have recourse to this procedure in only exceptional cases.

Internally I order fifteen grains of sodium salicylate four times a day, or eight grains of acetyl-salicylic acid three times a day. The value of salicylic preparations in epididymitis is beyond question. They not only reduce the fever and the local pain, but also induce a condition of euphoria. Where the fever is very high, aspirin may be combined with phenacetin or antipyrin. Morphine should be guarded against and should be used in very rare and extreme cases only, for not only does it keep up the fever and lock the secretions but it induces constipation, a condition against which we must guard particularly in epididymitis, because constipation has a decidedly bad effect on this complication, and if prostatitis happens to be coexistent, it also aggravates that. It is therefore my practice always to order some magnesium sulphate in all cases of epididymitis. It seems to me to exert more than a laxative effect, it aids in reducing the inflammation.

A hot enema is not only good for any existing constipation to clear out the rectum, but it does the local condition good, that is, it improves any existing prostatitis and posterior urethritis, and incidentally also the epididymitis. So that a small but hot enema at night, containing perhaps fifteen grains of antipyrin and five minims of tincture of opium, is a good thing.

Where the patient is extremely restless and cannot fall asleep, chloral or veronal should be given. If morphine is ever decided upon, it should be given in the form of rectal suppositories, and as a rule ⅓ to ½ grain of morphine will be required to produce the desired effect.

SHOULD THE URETHRA BE TREATED?

We come now to the question of the treatment of the urethra. Should the urethra be treated during an attack of epididymitis? Locally, absolutely no, under any circumstances. This was a universally accepted dictum for many years, but recently some ultra-active urologists have thought that they didn't see any reason why the urethra should not be treated, if the injections, irrigations, etc., are only given gently and carefully. Let those urologists settle the matter with their own consciences. I repeat that under no circumstances whatever should the urethra be treated locally during an attack of epididymitis. There is no injection or irrigation so gentle that it may not aggravate matters, cause a relapse, or turn the declining stage of the epididymitis into a furiously acute stage. To treat the urethra with any injection, irrigation, or instrument during an acute epididymitis is criminal folly, but internally we may keep on giving the same medicines, demulcents, hexamethylenamine, sandalwood oil, or preparations containing it, etc., though even these are best given in smaller doses than when no epididymitis is present.

Where the patient cannot go to bed, then we start at once with the application of the ointment above described; ointment, big layer of nonabsorbent cotton, oiled silk, the whole supported by a well fitting suspensory or jockstrap. A home-made T bandage from a waistband and a towel, while not elegant, answers the purpose and is much cheaper, which to the poor is an item. As it is, gonorrhea is a very expensive luxury, which only the rich and very well-to-do may permit themselves.

STRAPPING THE TESTICLE

Strapping the testicle is a very beneficial measure. It not only relieves the pain, but it helps in the absorption of the inflammatory exudate, and if properly applied the swelling diminishes rapidly under its influence. In six to eight hours the diminution in the size of the swollen epididymis may be so great as to be clearly apparent. The strapping with overlapping strips of adhesive plaster, as originally introduced by Friecke, was very popular for a long time, and if properly applied it did its work well; but it was troublesome, its removal every day (because the testicle having diminished in size it was no longer useful) caused the patient a great deal of pain, and if applied improperly, it was apt to do more harm than good. It is, therefore, now used by very few genitourinary surgeons. In this country, at least, it has been to a great extent superseded by the rubber bandage suggested by Chetwood. A piece of light rubber bandage, about two inches wide and three to four inches long, is taken, and a small piece of adhesive plaster, one half an inch wide and two inches long, is attached to one of its ends. The diseased testicle is pushed down to the scrotum until the skin is made as tense as possible over it; the rubber bandage is wrapped around the testicle, and is held in place by the strip of adhesive plaster. It may be changed daily, which is easily done; it is simply a matter of a minute. Care must be taken, however, that the strip of adhesive plaster is attached above the largest circumference of the testicle. If it is attached under it, the testicle will naturally slip out and up.

The epididymis may swell to the size of a fist or even

larger, in fact the size in exceptional cases is hardly believable. While on superficial examination it seems that it is the testicle that is swollen, still by careful manipulation, when the scrotum is raised and the patient is in bed, we can find that the testicle is intact, of the normal size, and merely semi-surrounded by the enlarged and inflamed epididymis. Occasionally, however, there is an effusion of fluid into the tunica vaginalis, and the testicle itself may participate in the inflammation. We then have to deal not with an epididymitis but with an orchiepididymitis or epididymoorchitis.

SEQUELÆ OF EPIDIDYMITIS

The induration of the epididymis and the occlusion of the lumen of the vas deferens have for their result, as stated before, sterility of the male. They either permit absolutely no spermatozoa to pass, the condition being one of aspermia, as much so as if the patient had been castrated; or the spermatozoa that pass are very few in number and deformed, and do not possess enough vitality to impregnate the ovum. But, strange as it may seem, this sterility is not accompanied by any impotence or diminished libido. The latter may even be increased. Nor does the patient's general health seem to be in any way influenced for the worse. I say this is a strange phenomenon, because we know of no other gland in the human organism whose excretory duct can be completely obliterated without any damage to the system. We can only assume that in some manner some of the products of the testicular function are absorbed into the general circulation, even though the ducts which give exit to the spermatozoa are obliterated.

Beside the induration of the epididymis, with the consequent sterility, to which epididymitis is apt to give rise, its only other sequel is a neuralgic pain in the testicles, which may be very difficult to get rid of. This pain is apt to make itself particularly noticeable in run down sexual neurasthenics.

A tendency to tuberculosis of the testicle is also mentioned as one of the sequelæ of epididymitis. Personally I have not noticed any such tendency, although *à priori* it is not difficult to understand that in a patient predisposed to tuberculosis, tuberculosis of the epididymis and the testicle may develop after those organs have been subjected to a severe inflammation.

OPERATIVE TREATMENT OF EPIDIDYMITIS

Of late years considerable has been written concerning the treatment of epididymitis by puncture and epididymotomy. I am not enthusiastic about the operative treatment of epididymitis. It will always remain almost exclusively a hospital procedure. It requires general anesthesia and the patient must stay in bed a week or two—so where is the gain? Suppose the patient does recover a few days earlier than he does by nonoperative treatment; the dangers of general anesthesia, the postoperative vomiting, the fear of the operation, are not worth the difference. And, besides, I do not believe in operating in any condition where we can get along without an operation, and I have not seen a single case of epididymitis which needed an operation. If properly treated from the start the patient is well in a week or two, and only in rare cases in three weeks, and without the shock and the expense of an opera-

tion. I repeat, therefore, that epididymotomy will most probably always remain a hospital operation—particularly recommended for soldiers and sailors, whose time is so "valuable" to the country. It will not become the method of choice in general practice.

CASE REPORT

The following two cases present some points of interest. A and B are brothers. A was a "rounder," had several attacks, and with practically every attack he developed an epididymitis; sometimes on the right side, sometimes on the other and sometimes on both. He had some attacks of epididymitis without an accompanying gonorrhea. In five years he had nine attacks of epididymitis, for the last five of which he was under my treatment. He then married, and at the end of eleven months his wife gave birth to a healthy child. A year later she had another baby.

B, the younger brother, had an attack of bilateral epididymitis, which laid him up for six weeks. Three or four months later he married, and though he has been married for three years and is very anxious to have a child, his wife is still childless. She has been examined and nothing seems to be wrong on her part, but no spermatozoa can be found in B's semen, obtained either by stripping the seminal vesicles or in the natural way in a condom.

These cases seem to corroborate the observation made by a number of physicians that the patient who had *one* attack of bilateral epididymitis is more apt to be sterile than he who had several.

CHAPTER XXVI

SEMINAL VESICULITIS

Seminal vesiculitis or spermatocystitis is an inflammation of the seminal vesicles, either one or both. It is impossible to say how frequent this complication of gonorrhea is, because if present in a mild degree it may give practically no symptoms, and even if present in a fairly severe degree its subjective symptoms are confounded with or overshadowed by those of the posterior urethra and the prostate. It is only by a careful rectal examination that we become aware of its presence.

The most common cause, and by far the most important cause, of seminal vesiculitis is gonorrhea. An important predisposing cause is coitus during the acute or subacute stage of gonorrhea.

The symptoms, as stated, may not be distinguishable from those produced by the onset of an acute prostatitis. There is one symptom, however, which distinguishes it from the latter, that is the ejaculations may be precipitate and the semen may be mixed either with blood (hemaspermia) or with pus (pyospermia). When the onset is very acute the patient may feel nauseated, may vomit and feel like fainting.

The diagnosis of a seminal vesiculitis is made: (1) by rectal examination; (2) by examination of the secretion obtained by expressing or "stripping" the seminal vesicles. The ex-

amination by rectum is performed the same way as the examination for prostatitis, only here the patient must invariably assume a strongly stooping position, bending his body practically to an angle of 90 degrees. The finger must be pushed in as deeply as possible, for the seminal vesicles lie above the prostate and are directed outward. Sometimes the vesicles are situated so high that even the most expert finger cannot reach or feel them. Normal vesicles, particularly when empty (soon after coitus) can hardly be perceived by the examining finger and when felt give the patient no pain, but when inflamed and distended with secretion they may be felt like two miniature, tortuous "frankfurter" sausages on each side of the prostate, and pressing on them causes the patient the most exquisite, the most sickening pain imaginable. Strong pressure on an inflamed seminal vesicle is even more apt to induce syncope in the patient than is the massaging of an acute prostate. There is one difference that I have noticed between the sensation produced by massaging a seminal vesicle and a prostate: the patient gets used to the handling of the latter, but never gets used to the handling of the former, he always has a sickish feeling after it.

To examine the vesicular secretion properly, so as to be sure that it comes from the vesicles and not the prostate, the prostate is first massaged thoroughly, then the patient urinates, the bladder is washed out with a quart of boric acid (2 per cent.) or mercury oxycyanide solution (1-5000), then the bladder is filled again with warm boric acid solution, the vesicles are massaged, and the patient empties his bladder. These washings contain the vesicular secretion,

which is then examined microscopically. Microscopic examination will show numerous blood and pus cells, deformed spermatozoa, gonococci, and various other bacteria.

The greatest gentleness must be used in massaging the seminal vesicles. They are very tender organs, their walls are thin, and serious damage may be produced by handling them roughly. The suggestion, therefore, to use a prostatic instrument like "Feleki's Finger" for massaging the vesicles when the finger is too short to reach them must be condemned unequivocally. We can never know just what force is being applied when we use a heavy steel instrument like this. There is great danger of rupturing the delicate wall of the vesicle.

I have already mentioned that in some patients the vesicles are situated so high or so out of the way that the most expert finger cannot reach them and therefore cannot massage them, but there are cases where we can feel the vesicles very well and still by the most persistent massage are unable to express any of their secretion. This may be due either to the peculiar situation of the ejaculatory ducts or to their complete inflammatory occlusion. Massaging of such vesicles will of course do no good, and if the symptoms which their inflammation produces are severe and do not yield to treatment they will have to be dealt with surgically. The surgical operation consists in draining the vesicles through the vas deferens, as suggested by Belfield of Chicago, or in vesiculotomy, as suggested by Fuller of New York; but as these are not operations for the general practitioner we will not use up space in describing them here.

The treatment of seminal vesiculitis is essentially the

same as that of prostatitis: gentle massage, hot rectal irrigations, the thermophore, hot sitz baths, and gonococcal or preferably mixed vaccines.

Vesiculitis is the longest lasting of all the complications of gonorrhea. Annoying as prostatitis is, a seminal vesiculitis is still more so. It requires indeed an inexhaustible fountain of patience on the part of both physician and patient. Nevertheless it must be treated, because inflamed and purulent seminal vesiculitis form the chief source whence arise the various metastases of gonorrhea, such as gonorrheal rheumatism, gonorrheal myelitis, gonorrheal inflammation of the serous membranes, endocarditis, and gonococcemia.

CHAPTER XXVII

GONORRHEAL PROCTITIS—GONORRHEA OF THE RECTUM

Gonorrhea of the rectum is not an uncommon occurrence. And unfortunately it is rather on the increase. One sees more cases of gonorrhea of the rectum now than one used to see, say, twenty years ago. It is much more common in women than in men, the infection being carried from the vagina to the anus. The infection is particularly easily transferred in women who have given birth to children and who have a lacerated perineum.

The diagnosis can be readily made from the history of the case, from finding gonorrhea in the genital tract, from the pain and strain in the rectum, and from the mucopurulent and occasionally sanguinolent discharge. Some cases are so mild that it is difficult to differentiate between them and simply catarrhal proctitis, but the finding of the gonococcus in the discharge settles the diagnosis.

As a rule gonorrhea of the rectum is readily amenable to treatment, and is cured without leaving any sequelæ. In some cases, however, severe erosions of the rectal mucous membrane are produced, which on healing contract and give rise to stricture of the rectum.

The treatment is simple. The rectum is examined by aid of a speculum and a strong light or by the proctoscope. Erosions are touched with strong solutions of silver nitrate,

and injections of silver nitrate or protargol into the rectum are given three or four times a day. The strength of the silver nitrate solution may be from 1-1000 to 1-500, of the protargol solution 1-200 to 1-100. From 4 to 8 oz. is used per injection, and each injection is held in ten minutes. Besides the injections I prescribe protargol suppositories, each suppository containing 1 to 2 grs. of protargol. These may be used twice or three times a day.

℞ Protargol gr. i
Ol. Theobromatis gr. xx
Mf. Suppos. No. 1. Tal. Dos. No. xxx
Sig. one t. i. d.

℞ Argyrol gr. v
Ol. Theobromatis gr. xxv
Mf. Suppos. No. 1. Tal. Dos. No. xxx
Sig. one t. i. d.

Constipation and straining at stool must of course be carefully guarded against. Before giving the injections a plain injection of water or saline solution is given, so as to make sure that the rectal mucous membrane is clean and free from fecal matter. The itching around the anus is sometimes very severe in gonorrheal proctitis, but this is readily remedied by frequent washing of the anus with hot water and subsequent painting with a 10 per cent. solution of silver nitrate.

CHAPTER XXVIII

GONORRHEAL STOMATITIS—GONORRHEA OF THE MOUTH

The existence of genuine cases of gonorrheal infection of the mouth is no longer a subject of discussion. Taking in consideration the fact that the mouth is lined with the same variety of epithelium as is the urethra, and taking in consideration the further fact that certain sexual perversions are quite common, the surprise is not that gonorrheal infection of the mouth exists but that the cases are relatively so few in number.

On the whole, the buccal mucous membrane is very resistant to the gonococcus. In his entire practice the writer has had but three cases of gonorrheal stomatitis where there could be no question as to the diagnosis—two in women and one in a man.

The cause of the infection is a purely local one, that is, it is due to the direct transference of the gonococcus into the mouth. I do not share the view that there is such a thing as a systemic gonorrheal stomatitis, that is a stomatitis caused by the gonococcus or its toxins affecting the mouth through the blood. The method of infection in adults is due to pervert practices, or it may perhaps in some cases be due to transferring the gonococcal pus with the fingers. In the newborn it is due to infection from the mother as the child passes through the vaginal canal.

The symptoms of gonorrheal stomatitis are: a raw feeling in the mouth with an extremely nasty taste; the tongue may become considerably swollen; the mouth may be hard to open; the gums may swell, though not necessarily so. The expectoration is thick, ropy, occasionally bloody; sometimes it is slight in amount, in other cases it may be very abundant. In some cases swallowing is very painful, and in some cases impossible. The sub-lingual, parotid and lymphatic glands usually swell; there is no record, however, of these glands going on to suppuration.

Properly treated this horribly nasty infection is cured in one to three weeks. The treatment is simple: touching with the silver nitrate stick or with a saturated solution of silver nitrate any eroded spots, and using a solution of silver nitrate 1-5000 as a gargle, which is to be repeated every hour. Instead of silver nitrate we may use 1-1000 protargol solution as a gargle. The solution of either the nitrate of silver or the protargol should be kept from three to five minutes each time in the mouth, and the gargling should be done thoroughly, so as to reach the fauces. Where gargling is difficult the solution of silver nitrate 1-1000 or protargol 1-200, or argyrol 5 per cent., should be used on a cotton swab, the throat, tongue, gums, inside of cheeks, etc., being thoroughly swabbed four or five times a day.

Gonorrhea of the Nose. It is questionable whether gonorrhea of the nose exists. Certainly not a single authenticated case has been reported. The subject may therefore be dismissed with this brief paragraph.

CHAPTER XXIX

STRICTURE

Stricture is a narrowing or constriction of the caliber of the urethral canal at some point or points. As the urethra is ordinarily a closed canal, dilating only for the passage of urine, semen and instruments, it would be more correct to define stricture as a loss of or diminished dilatability of the canal.

Strictures are generally divided into spasmodic, inflammatory and organic. It is only to the latter kind that the name stricture should be applied. A spasmodic stricture is really but a spasm of the compressor urethræ muscle, and should be referred to as a spasm of the muscle or spasmodic constriction. Inflammation itself rarely if ever produces a definite constriction of the urethral lumen, definite enough for instance to cause retention of urine. An inflammation superadded to a previous organic stricture may cause complete retention, but then it is wrong to refer to it as an inflammatory stricture. It is merely an organic stricture which has become inflamed. The entirely different methods of treatment in spasmodic and organic strictures will show that spasmodic stricture does not deserve the name of stricture. As spasmodic stricture is of little importance pathologically, I will devote but little space to it, paying special attention to organic stricture, and particularly to organic stricture of gonorrheal origin.

Strictures are not met with nowadays with the same frequency that they used to be in former days. This is both because there is less neglect on the part of patients in treating themselves for gonorrheal affections, and because our treatment is more rational and more scientific than it used to be. But even so they occur with greater frequency than they should, and a stricture occurring in a patient who has been under a physician's treatment right along is a direct reproach to the physician. It shows that the treatment was either insufficient or incorrect, for while we cannot prevent epididymitis in every one of our gonorrheal patients, while we cannot prevent prostatitis in every one of our cases, stricture can be and should be prevented in every case. We cannot prevent the migration of the gonococci into various glands and neighboring organs, once they invaded the submucous tissue of the urethral canal, but we can prevent connective tissue formation in every instance.

Organic stricture is a narrowing of the urethra formed by bands of connective tissue in the mucous and submucous layers of the canal. It may be due to trauma (wound, injury), and such strictures are called traumatic, or to inflammation of the urethra. Of these inflammations the most common one is gonorrhea. While a stricture may be produced by a non-gonorrheal urethritis, still it is so rare as to be practically negligible. In fact all possible causes of stricture pale into insignificance as compared with the one great cause, namely gonorrhea, which is the etiologic factor in about 80 or 85 per cent. of all strictures.

A stricture that permits the passage of a 22 French bougie or sound is referred to as stricture of wide caliber. Those that are so narrow that they will not permit the

passing of a 22 or 20 French sound are spoken of as strictures of a narrow caliber. A stricture that will permit the passage of only a filiform bougie is spoken of as filiform stricture. A stricture that does not permit the passage even of a filiform is spoken of as an impermeable stricture, and causes complete retention of urine. Strictures which are dilatable by sounds but immediately return to their former caliber are referred to as resilient strictures.

Strictures may be single, but this is rarely the case except when they are of traumatic origin. When of gonorrheal origin they are generally multiple. We generally find two or three strictures in the same urethra; in exceptional cases we may find as many as 15 or 20. Narrow strictures (imagine a thread tied around the urethra) are spoken of as linear; broader strictures (imagine a tape tied around the urethra) are referred to as annular, ring-like. Multiple strictures, or broad annular strictures in which the lumen instead of being in the center is in the side of the constriction and in which the entire passage becomes tortuous, are spoken of as tortuous strictures. Strictures with which the general practitioner has to deal are fortunately most commonly in the anterior urethra. Traumatic strictures are generally situated in the membranous urethra. There are no strictures, or so seldom as to be entirely negligible, in the prostatic urethra.

SYMPTOMS

A stricture of wide caliber, or even of a somewhat narrow caliber, may present no symptoms that the patient is aware of. A patient may have a stricture for ten or more years without knowing it, or without paying any attention to it,

when suddenly, after a debauch, or sexual excess, or a cold, he is taken with complete retention of urine, when he applies to the physician, who then discovers a stricture of apparently many years' standing.

But as a rule strictures do give symptoms. One of the commonest ones is the well known gleet, which consists of a slight urethral discharge. The discharge is generally supposed to be most common in the morning, but this is only so because during the night the patient passes the longest time without urinating, and the discharge has time to accumulate in sufficient amount to be noticed. But if the patient should abstain from urinating during the day for eight or nine hours we will be sure to find the discharge then too. In fact I have had a number of cases in whom the discharge in the morning was extremely scanty, so as to be noticed or squeezed out only with difficulty, while towards evening after their day's work it was much more abundant. This was also true of shreds in the urine. While as a rule the shreds are much more numerous in the morning, this is only because of the longer time passed without urinating. And just as the discharge may be more abundant in the evening, so the morning urine may be practically free from shreds while the evening urine, if the patient abstained from urinating for several hours, may be full of them. While a gleet may occur without a stricture, still stricture is its most common cause, and in every case of obstinate gleet, refusing to heal under ordinary injections, we should suspect stricture; and on examination we will in the vast majority of cases find it.

The next symptom is a change in the size and character of the urinary stream. It is this that often brings the

patient to the doctor. Besides being smaller in size than usual, it may assume a fantastic direction, going either to one side or downward, or may become corkscrew shaped; or, which is very common, it splits in two or three different directions.

Then there is almost invariably dribbling of the urine. The final contraction of the vesico-urethral musculature is insufficient to drive out the last drops of the urine on account of the obstruction met on the way, and they therefore dribble away by the action of gravity. Very often they do not dribble away entirely but remain, some in front, some in back of the stricture, keeping up a low grade of inflammation. Having to overcome an obstacle during each act of urination, the musculature of the neck of the bladder becomes hypertrophied, and as is the case with all unnaturally hypertrophied muscle, it becomes weakened. There is developed a low-grade inflammation of the neck of the bladder with some cystitis, and this increases the frequency of micturition, which is another important symptom of long-standing stricture. The patient may have to urinate every hour or every half hour during the day and several times during the night. The pain is sometimes slight but may become excruciating, so that the patient will double up during the act of micturition.

In long neglected stricture there may be hypertrophy of the bladder walls, well developed cystitis, pyelonephrosis, pyelitis, etc., but these are remote effects of stricture, and we are here concerned only with gonorrhea and its immediate complications.

And finally we may have complete retention with extravasation or infiltration of the urine and various fistulæ.

The sexual symptoms of stricture are important, because they are frequent, annoying, and often overshadow the urinary symptoms caused by the stricture. These symptoms are weakened or imperfect erections, premature ejaculation, diminished voluptas during the act, a feeling of scalding or burning in the urethral canal during and after the ejaculation of the semen, and occasionally a disturbance in ejaculation. The semen may fail to discharge externally at all, running back into the bladder, or it oozes out slowly after the erection has subsided. As a rule there is a diminished desire for intercourse but occasionally, as so often happens in the inflammations around the posterior urethra and the prostate, there may be just enough inflammation to keep up an irritation which makes the patient believe that he is constantly erotically excited; it is a fictitious libido. In irritable stricture pollutions are also frequent, and it is quite frequently here that we have to deal with retro-pollutions or ejaculation of the semen into the bladder.

TREATMENT

The treatment of stricture is mechanical and operative. The general practitioner will seldom have to have recourse to the operative method, as we can accomplish as good results with the vast majority of strictures by mechanical dilating.

Dilatation is performed by means of silk woven bougies, steel sounds, and the various several-branched dilators. For strictures which will not admit any more than 12 or 15 French we use silk-woven bougies, because a very thin steel sound is apt to make a false passage. But for strictures above 15 we use steel sounds or dilators.

The greatest gentleness must be exercised in introducing a sound. Very much damage, aggravation of the inflammation, chills, septic infection, false passages, severe hemorrhages, have been caused and are being caused by physicians with too heavy a hand or too much in a hurry to accomplish results.

To introduce a sound properly wash the glans and the meatus well with a 1-5000 bichloride solution, irrigate the portion anterior to the stricture with a 2 per cent. boric acid solution, and if you see the patient for the first time, or if you know that the patient is of a nervous disposition, instill a few drops of a 4 per cent. alypin and a few drops of a 1-1000 adrenalin solution in the neighborhood of the stricture. This not only takes away the pain to a great extent, but also makes the lumen of the stricture larger, more patent, by taking away the inflammatory swelling. Then lubricate the bougie, or if it is a sound pass it first through a flame, which sterilizes and warms it at the same time, then lubricate it with a sterile lubricant, oil being the best, and introduce it gently through the stricture. Do not try to force it too much. Slight force is permissible, but not enough force to tear or divulse the stricture. Sometimes by waiting with the tip of the sound at the opening of the stricture for a few moments, a stricture which seemed to be absolutely impermeable will become permeable and permit the passing of the sound. This is true not only of spasmodic but of genuine organic strictures, because a slight amount of dilatability most of them possess.

After having introduced the sound let it stay there for five to ten minutes. I believe that passing the sound and taking it right out is insufficient. It is not only the mo-

mentary dilatation of the stricture that does good, but the more or less prolonged contact of the stricture with the steel sound that produces the absorption of the scar tissue.

Always be sure to have the patient take 10 grains of hexamethylenamine about an hour before he comes to the office, and 10 grains afterwards. Many infections and urethral chills are avoided thereby.

The sounds may be introduced every two or three days, and at each visit we may use a larger size sound. It will be found that very often when we are unable to pass a larger sized sound we will be able to do so if we pass before a smaller sized sound: In other words, suppose we pass on Monday a 24 size sound; if we try on Wednesday to pass a 25 or 26 size sound we may not be able to do so, but if we pass again a 24 size sound, leave it in for a moment, then remove it and try to pass a 25 or 26 size sound, the latter will pass in easily. In this way we continue the passing of the sounds until we are able to pass easily a 30 or 32. Higher we need not go. When we have reached that size we can order the patient to come every two weeks or every month for an examination to observe if the stricture began to recontract, and it is also a very good idea to teach the patient himself to pass the sound. If he is intelligent and can be taught to use asepsis and commonsense, we can trust him to pass the sound once a month or once in two months, and in this way there is no danger of his stricture recontracting.

DILATORS

The dilators introduced by Kollmann and Oberländer present a great advantage over the steel sounds, for they may be passed through a meatus as small as 21, and can

be dilated when in the urethra to any size we wish. As most of the strictures that the general practitioner has to deal with are in the anterior urethra, it is the anterior or straight dilator that he will have to use mostly. The thin rubber sheath which accompanies the dilators is slipped on the dilator, the dilator is stretched to its full capacity to make sure of the integrity of the sheath, it is then closed again, lubricated with a sterile lubricant, introduced into the urethra, and dilated to the desired size. The indicator dial on the dilator shows just the degree of dilatation, and with each sitting the dilator may be dilated two or three divisions higher.

After the removal of the sound or the dilator it is well to instill a few drops of a ⅕ of 1 per cent. (1:500) solution of tincture of iodine in the neighborhood of the stricture, which acts both as an antiseptic and as a "healing" agent.

MEATOTOMY

Some meati are so small that they won't even permit the passage of a dilator. Such meati must be cut before we can expect to do anything with the stricture. While there are numerous meatotomes on the market invented by surgeons anxious to be immortalized by giving their name to an instrument or by enterprising manufacturers, they are all superfluous. All that is necessary is a blunt-pointed bistoury.

Wash the glans and the meatus thoroughly with a 1-5000 bichloride solution. If you are very particular, irrigate the anterior urethra for a couple of inches or swab it out with a cotton swab dipped in the same solution, then insert in the meatus a bit of cotton dipped in a cocaine or alypin-

adrenalin solution. Or instead of the cotton just a half grain of cocaine powder or crystals may be deposited on the floor of the meatus and about 5 drops of adrenalin 1-1000 dropped in. After about three minutes the floor of the meatus will be seen to have become blanched. You then introduce the bistoury and cut exactly in the median line on the floor of the urethra as far as you wish to have it cut. Supporting the floor of the meatus with one finger of the left hand will tell you just exactly whether and how far to

Cauterizing Tip for Meatotomy

Meatus Sound for Dilating and Measuring the Meatus.

cut. After cutting pass a short anterior sound to make sure that you have cut sufficiently. It is better to cut a little more than a little less, because there will be some re-contraction on healing. If cut exactly in the median line there will be very little bleeding. If there is an abundant hemorrhage compress the urethra laterally for several minutes, or put a bandage around the glans, and the hemorrhage will stop. Before sending the patient home take a piece of a wooden applicator or a toothpick, wrap some absorbent cotton well around it, dip it in 1-1000 adrenalin solution, and insert it in the meatus. The patient removes it at the next urination.

Never cut on the roof of the urethra, as I have seen more than one physician do. It only cuts the glans without act-

ually dividing the constriction, which is on the floor of the urethra.

Some meati have a tendency to reunite unless prevented from doing so, and this is prevented by passing a short steel sound several times a day, and by inserting between urinations a bit of cotton smeared with borated vaseline.

When the little operation of meatotomy is healed or about healed, then we commence with the introduction of sounds or dilators.

While the meatus should be cut sufficiently large to admit 24 or 26 French, I see no reason for cutting it as some do to 32 or 34. There was an excuse for doing it before the introduction of dilators. It was necessary in order to permit us to pass a 32 or 34 sound. But now when we have the dilators with a caliber of 21-23 French it is not necessary to cut the meatus much more than that. The excuse that the physician does not possess a Kollmann dilator and has only sounds is not a valid one. He should purchase one. The patient's urethra must not be slashed merely because the physician does not possess a necessary instrument.

I am opposed to excessive meatotomies not on purely sentimental or esthetic grounds, but because in my opinion they interfere with proper urination, and quite possibly also with proper intercourse. When water issues from a tube of a narrow caliber, but with a wide opening, it will splash, and people with excessively cut meati do not pass a uniform strong stream of urine. I have had the impression that excessively cut meati are also a cause of premature ejaculation. I am therefore opposed to cutting the meatus to a size larger than 24 or 26. With the dilators it is unnecessary, and it may be injurious.

CHAPTER XXX

GONORRHEAL ARTHRITIS

Gonorrheal arthritis or gonorrheal inflammation of the joints is not a very frequent complication of gonorrhea. It occurs in about 2 per cent. of all gonorrheics and is much more frequent in the male than in the female sex, not only absolutely—for this is self-understood, so many more men have gonorrhea than women—but also relatively.

But he whom it does attack has the devil to pay. While of late the results of our treatment have been better than they used to be, nevertheless there are still cases which resist every kind of treatment, and I know personally several cases of patients whose careers have been ruined by this complication. One is the case of a young pianist, very talented and very promising, who had to give up his hopes and his profession on account of an ankylosed wrist joint, due to gonorrheal arthritis. Another case is that of a fairly well known surgeon whose finger joints became thickened and somewhat ankylosed, and who had to give up surgery and fall back on internal medicine, where he is much less of a success than he would have been in surgery.

At first no causal relationship was thought of between joint inflammations and gonorrhea. When a patient having gonorrhea developed inflammation of one or more joints it was considered merely a coincidence. Any man can get rheumatism, and an inflamed joint during the course of an acute or chronic gonorrhea was merely considered rheu-

matism, for which the gonorrhea was not in any way responsible. Later on when cases of arthritis in the course of gonorrhea were seen to be too frequent to be accounted for merely by coincidence it was thought that the gonorrhea acted as a predisposing cause by weakening the organism, reducing resistance, etc. Finally, however, gonococci were found in the exudation around the joints, and it was then seen that the gonococcus plays not merely a predisposing but a direct rôle.

It must not be thought, however, that in every case of gonorrheal arthritis gonococci may be found. In some cases other bacteria, such as staphylococci and streptococci are found; in still others no bacteria whatever can be found. In such cases it is assumed that the inflammation is caused not by the gonococci themselves but by the toxins generated by the gonococci.

Nor must we blindly assume that every inflammation of a joint occurring during the course of a gonorrhea must necessarily be gonorrheal, for a patient with gonorrhea may, the same as any other man, get an attack of acute inflammatory rheumatism. This must be borne in mind to avoid regrettable failures in practice.

While any gonorrheal focus in the genito-urinary tract may give rise to gonorrheal arthritis, it is particularly frequent in cases of prostatitis and seminal vesiculitis. The latter is considered the most important etiologic factor on account of the rich network of bloodvessels which surround the vesicles.

Points of differential diagnosis between it and acute rheumatism or rheumatic arthritis are: the presence of a gonorrhea; the fever is much higher in inflammatory rheumatism

than it is in gonorrheal arthritis; also the pain is more severe and more joints are affected; while in gonorrheal arthritis two or three joints may be affected, as a rule only one is affected.

The frequency of the joints affected are as follows, in the order named: knee joint, ankle joint, wrist joint, finger joint, elbow joint, shoulder joint, hip joint and jaw. The knee joint, as said, is the most frequent, furnishing as many cases as all the other joints combined.

The symptoms vary from slight transient pains in and about the joint without any inflammation to a severe inflammation with effusion. The effusion may be serous in character, sero-fibrinous or purulent. The pain in the effused joint may vary from none at all to one almost as severe as that of acute articular rheumatism. The attack may come on suddenly. There may be a large effusion of liquid around the knee joint, the skin over the knee joint may be red, and still there may be no pain whatever, either spontaneous or on handling and pressing.

The inflammation may end in resolution, in ankylosis, or in abscess, and unfortunately there is a tendency to recurrence. There are some rare cases in which not only the synovial membranes of the joint but also the periarticular tissues participate, the joint becoming a phlegmonous abscess which requires prompt surgical treatment. Such cases, however, are rare, and the general practitioner will not have many chances to see them.

TREATMENT

Frankness demands that we state at the outset that the treatment of gonorrheal arthritis can not yet be termed a

brilliant success. We cure many cases, we relieve many more, but many cases seem to resist all efforts; and we are unable to predict what cases will be benefited and what cases will remain uninfluenced by treatment. Sometimes the apparently mildest cases laugh at all our efforts, while severe cases with joint involvement, where there is even an apprehension that operative measures may become necessary, get along very smoothly.

It is perfectly legitimate to start every case of gonorrheal arthritis on salicylic preparations, both internally and externally. We have a right to do so for two reasons. First of all, the diagnosis between gonorrheal arthritis and rheumatism is not so absolute that the possibility of error can always be excluded. A man with a gonorrhea having pain and inflammation in the joints need not necessarily have, as stated before, gonorrheal arthritis. A man with gonorrhea can get ordinary rheumatism the same as any other man. Then there may be such a thing as mixed rheumatism, articular inflammation due to the gonorrheal germ and its toxins and to other germs. And second, even in pure cases of gonorrheal arthritis the salicylic preparations are of some benefit, though of course the benefit is slight as compared with the benefit in true rheumatism. I therefore start every case of gonorrheal rheumatism with large doses of sodium salicylate (15 to 60 grs.), salol (5 to 10 grs.) or aspirin (8 to 15 grs). Externally I have the painful parts rubbed in with an ointment consisting of methyl salicylate, lard and woolfat:

℞ Methyl salicylatis, ʒij (8.0)
Adipis
Adipis lanae āā, ʒiv (16.0)

This is well rubbed in, covered with non-absorbent cotton and oiled silk or rubber tissue. The whole is held in place by a well fitting gauze or rubber bandage. This treatment produces a beneficial effect for three reasons: first, on account of the analgesic action of the methyl salicylate; second, on account of the partial immobilization of the joint; third, on account of the warmth and the partial passive hyperemia induced by the rubber tissue and bandage.

Instead of the ointment I often have the joints and painful parts painted with the following mixture:

Acidi salicylici, ʒj (4.0)
Menthol, gr. xv (1.0)
Guaiacol, gr. xxx (2.0)
Alcohol, ʒi (30.0)

The joint is painted, then protected with non-absorbent cotton, oiled silk and rubber tissue the same as after the use of the ointment.

In some cases inunction with unguentum Credé seems to be distinctly beneficial.

If the salicylic preparations seem to exert no effect we may proceed to saturate the patient with calcium sulphide (calx sulphurata—sulphurated lime) and arsenic iodide. The sulphurated lime may be given in doses of 1 to 2 grains three to four times a day, the arsenic iodide in doses of $\frac{1}{100}$ to $\frac{1}{60}$ gr. three to four times a day. Be sure to get a good quality of calcium sulphide or calx sulphurata, because much of it on the market is practically nothing but calcium sulphate, which is inert.

Bier's hyperemia is a well recognized procedure in the

treatment of gonorrheal arthritis, and in some cases gives very excellent and rapid results. In other cases, however, it fails completely.

Vaccinotherapy. Gonorrheal arthritis is about the one complication of gonorrhea in which we are justified in using gonorrheal vaccines. Not that the results are so brilliant, but they are better than in gonorrheal urethritis and in its other complications; and second, because the disease is often resistant to other treatment, and in such cases we are justified in doing something.

Fifty million gonococci should be injected as an initial dose (in women and young individuals we may commence with 25,000,000), gradually increasing the dose to 500,000,000. The treatment is not to be kept up indefinitely or for a period of several months, as I have seen it done in a number of cases. A physician with common sense will very quickly see whether the treatment is beneficial, remains without effect or is injurious. In some cases the mixed gonococcus vaccine seems to do better than the gonococcus vaccine alone.

And last but not least the gonococcal foci must be treated vigorously. By vigorously I do not mean roughly or strenuously, but I mean gently and persistently. There is no use hoping to cure a patient of his gonorrheal arthritis if there is an active or even a mild gonorrheal process in the urethra, or if there are gonococci in the prostate or in the vesicles. The urethra must be irrigated, the prostate and the vesicles must be massaged, and everything else possible must be done to cure the local lesions and to eliminate the gonococci from the system.

Some surgeons advocate drainage of the seminal vesicles

or their removal as a cure for gonorrheal arthritis. I have my opinion of vesiculotomy and vesiculectomy, but as these are not operations which will be undertaken by the general practitioner, for whom alone, we repeat, this book is written, it is not necessary to discuss them here.

CHAPTER XXXI

GONORRHEA vs. TOBACCO, ALCOHOL AND SEXUAL INTERCOURSE

I know that what I will say here will appear as rank heresy. But I have so many heresies to answer for that one heresy more or less does not matter. And then heretics nowadays are not consigned to the auto-da-fé, nor are they, in large cities at least, even in danger of ostracism. So, at the present day, it does not require great courage to be a heretic or an iconoclast. But I wish to assure my readers that I have nothing but the deepest contempt for the iconoclast who ridicules old theories and shatters old beliefs merely for the purpose of notoriety, merely because he wants to shock people, merely because he wants to be in the limelight for a while. That my ideas run counter to the generally held beliefs and teachings, is a matter of regret to me. But I would not announce them if I were not perfectly convinced in my mind, and if I could not prove it to my perfect satisfaction, and to fair satisfaction of those who will give the matter an unbiased hearing, that they are right and beneficial, and that the old theories are wrong and pernicious.

Though it is a trite statement, for it has been made so many times, it is nevertheless true that many text-books do not present their authors' actual knowledge and personal

experience, but are rather a résumé of the other text-books in vogue at the given time. When a man who is writing on a certain subject has twenty of the most prominent text-books before him and finds that all or nineteen of them make a certain statement, he will be consciously or unconsciously influenced by that statement. If his experience coincides with the statements of the text-books or if he has had no experience in the line covered by the statement, he will of course have no hesitation in reproducing that statement in his writings. But suppose his experience differs from or is even diametrically opposed to the text-book statements—then he thinks that one man's experience cannot be as valuable or as deciding as that of twenty text-book writers. He represses his doubts, buries his skepticism—and reproduces the statement of the authorities. He is unaware of the fact that all the twenty statements may and generally do represent one original source, one original statement that has been copied and recopied from one text-book into another, without real critical analysis; he is not aware of the fact that a "consensus of opinion" is often or occasionally but the thoughtless utterance of an unthinking man thoughtlessly repeated by a thousand other unthinking men.

GONORRHEA AND TOBACCO

For years almost every text-book on the treatment of gonorrhea told us to be sure to warn our patients against the use of tobacco. Has anybody ever seen any injurious effect of tobacco on the course of a gonorrhea? I am sure not. And why should there be any? Why should the smoking of tobacco aid the development of the gonococci or increase the congestion in the urethra and prostate? If

tobacco has any effect on the genital sphere, it is that of a sedative, a depressant, and therefore cannot exert any injurious effect. Of course at the beginning of my practice I also forbade my gonorrheal patients to smoke; but I soon saw the absurdity of this prohibition. I saw that the non-smoking was not only not doing the patient any good, it was doing him *actual harm.* By making him nervous and fidgety, by taking away his appetite, by disturbing his sleep (some people are so used to their smoke that by depriving them of it you interfere with all their somatic functions), by interfering with the regular movement of his bowels (to some people a smoke is a necessity while in the toilet), his general condition was aggravated, and this of course reacted deleteriously on the course of the local disease. Since permitting my patients to smoke *ad libitum,* I have not had to regret it in a single instance, and not only were the patients grateful for the permission, but the course of their disease was favorably influenced thereby. Of this I am sure.

GONORRHEA AND ALCOHOL

What I said about the injunction against smoking applies, only with much greater force, to the injunction against drinking, i.e., drinking of alcoholic beverages. In every textbook, in every article written on the subject it is enjoined upon the patient not to touch a drop of anything containing C_2H_5OH in any shape or form. Dire results are threatened in the case of an infraction of this injunction. That in the acute florid state of gonorrhea alcohol in any form is best abstained from is granted; but I emphatically deny that there is any valid reason for denying alcohol to those suffering with chronic gonorrhea or urethritis. I even

question if it is necessary to prohibit alcoholic beverages absolutely in the declining stage of an acute gonorrhea.

Though perhaps too personal a matter, it, for certain reasons, may not be amiss to state here that the writer is practically a total abstainer. What he consumes in alcoholics would not yield to the government two cents per annum in revenue tax. It is not therefore out of personal predilection that he pleads for not depriving the patients entirely of every kind of alcoholic beverage that they have been used to, but because he is convinced that such deprivation often works direct and positive injury to the patient.

Many, many years ago, a member of the tonsorial guild told me while trimming my hair that in his opinion the doctors as a class did not know very much (of course, there were exceptions, he hastened to add). He had a gleet, oh, for ever so long. He went from dispensary to dispensary, doctor to doctor, they all gave him different injections and told him to keep away from liquor; but he wasn't getting better. He finally got disgusted, got drunk one evening, kept on drinking beer—and very soon he was well. What's more, since then he gave that advice, to drink beer, to a number of people and most of them got better. Yes, some got worse. I smiled then at the ignorance of my barber, but in later years I came to think of his story. I had a patient, a Frenchman, who from his earliest youth was in the habit of taking a glass of claret with his principal meal or meals. I forbade him the claret. He was unable to eat. Eating without zest, he got dyspepsia, and his bowels became very constipated, which made his gonorrhea worse. He went on like that for about two weeks, but then he said he could

stand it no longer. I permitted him then to have his claret. Not only his general condition, but his gonorrhea also improved. These and similar things set me thinking, and I began to observe cause and effect—and I have ceased threatening my gonorrhea patients with dire consequences if they did not abstain from all alcoholic beverages. And I still have no cause to regret my liberality in this respect. Many cases of chronic urethritis are distinctly improved by the moderate consumption of beer and wine.

GONORRHEA AND SEXUAL INTERCOURSE

In spite of the elaborate introduction at the head of this article, I confess that it is with some trepidation that I approach this subject. But it is better to get at once in *medias res*. A decent man with acute gonorrhea, with profuse discharge, with ardor urinæ, painful chordee, etc., will not think of having intercourse. Not that he has no desire—the libido is only too frequently heightened in all stages of gonorrhea—but common, ordinary decency will restrain him from satisfying his desire, even if he did not know that indulgence might prove injurious to him. But from advising abstinence in the acute stage is a wide gap to the strict prohibition of all sexual relations during the entire course of a chronic urethritis, no matter of how long a duration. It is not merely that such abstinence is unnecessary. If it were only that, it would hardly be worth while broaching the subject. But such abstinence is injurious, *injurious to the gonorrhea itself,* and when this is the case it becomes the duty of the physician to speak. And I will say clearly that many cases of chronic urethritis, gonorrheal and non-

gonorrheal, are unmistakably benefited by sexual intercourse. Nor is it hard to understand the reason. A little thought will make the rationale perfectly clear.

A perfectly healthy person, who has led a normally active sexual life, will often, when obliged for one reason or another to forego sexual relations for a considerable period, begin to suffer from a certain congestion in the genital organs. The testicles will feel heavy and painful, there will be irritation and radiating pains in the prostatic region, etc. These symptoms are much more aggravated in gonorrhea. The libido is, as is well known, frequently greatly exaggerated in gonorrhea. This is due to the local congestion in the organs. If a man is suffering from subacute or chronic urethritis or prostatitis, and you forbid him to have any sexual relations for several months, you surely aggravate all his symptoms, increase the congestion, and make the local condition much more difficult to cure. Sometimes you make a cure impossible. And in fact nature often rebels at and scorns your injunctions, and to your orders of perfect abstinence she often replies with nightly emissions, which hurt a patient much more than normal coitus would. It is a well known fact that many gonorrheal patients begin to suffer for the first time, during their illness, with very annoying and frequently repeated pollutions. A little thought will show us that a normal coitus accomplishes in a simple, pleasant and complete manner what we are trying to do therapeutically in a crude, painful, incomplete and not infrequently harmful manner. In our treatment we try to bring the gonococci hidden in the various urethral glands and lacunæ to the surface. We do this partly with our injections, partly by massage of the

urethra, and now we have even introduced the vacuum suction treatment, which has this purpose in view. We massage the prostate and strip the seminal vesicles—frequently with quite some traumatism to these two organs—and for what purpose? To free the prostate and the seminal vesicles, as far as possible, of the gonococci and the catarrhal or purulent products which they may contain. I maintain, then, that a satisfying, normal coitus—not coitus interruptus, or reservatus, or retardatus, but a perfectly normal coitus—will accomplish this purpose in a much *more complete manner,* and without any injury to the patient. (For I must again mention that massage of the prostate and particularly stripping of the vesicles, except in very expert and gentle hands, is *not an indifferent* procedure. The vesicles have more than once been irretrievably damaged by rough milking or stripping.) He who has had an opportunity of examining the prostate and vesicles before and after coitus will testify how completely they may be emptied by the process of sexual intercourse. Certainly much more completely than any massage or stripping ever can. The fact that both the subjective and objective symptoms in a chronic gonorrheic are frequently markedly improved after coitus speaks in favor of the latter.

Here the hypercritical might interpose: If intercourse is not only not harmful but distinctly beneficial in chronic gonorrhea, why is it not also beneficial in acute gonorrhea, and why not also recommend it in that condition? Because we have an entirely different condition to deal with. In acute gonorrhea we have an acute active hyperemia; all the blood vessels are overfilled with blood and to bring an additional flow of blood would still further

distend the blood vessels and erectile tissues, and might cause an edema, by transudation. In acute gonorrhea we must avoid anything which will cause an erection, as the penalty might be a painful chordee. In chronic gonorrhea we have but a slight, generally passive localized hyperemia; we may even have an ischemia. The effect, therefore, is not the same. What is good in one stage of gonorrhea might be distinctly injurious in another stage. Our critic might as well ask: If a two to ten per cent. solution of silver nitrate is so beneficial in chronic urethritis, why not also use it in acute urethritis? if massage is useful in chronic prostatitis, why not use it also in acute inflammation of the prostate?

So far, I have spoken of the man only. We now come to the woman. The woman must, of course, be protected at all hazards. If the woman cannot be protected absolutely then the man must abstain absolutely, no matter how injurious the results of abstinence may be to him. Fortunately the woman can be protected. A proper condom *is* a perfect protection, but unluckily it is not satisfactory as far as the man is concerned. Coitus condomatus does not do what we want it to do in emptying the prostate and vesicles, and does often leave the man in an unsatisfied and irritable condition. This is true of normal men and is still more true of men with some venereal and sexual trouble. But it is not necessary to depend upon the condom. A perfectly safe way is the insertion by the woman of a mild antiseptic suppository a few minutes before coitus (one containing salicylic acid, boric acid, chinosol, etc.), and the use after of a mild antiseptic douche. This method has been used in very many cases. And there has not been

a single case of infection. None has come to my notice, and I am certain that I would have heard of them if any had occurred, because it was done by my advice, and if infection had taken place the responsibility would have been thrown on my shoulders.

I might add here that many men who, soon after marriage or on the point of getting married, find that their gonorrhea, which they thought was perfectly cured, is still uncured, have been advised this method, and in no instance was a wife ever infected.

In conclusion I might say that abstinence during a long drawn out case of chronic urethritis—an abstinence lasting months or one or two years, for there are cases of urethritis lasting that long—has another injurious effect; namely, it is apt to affect a man's sexual potency. But this is a point that does not belong in this book.

CHAPTER XXXII

GONORRHEA IN WOMEN

When a man has gonorrhea he knows it. While (having learned long ago not to be dogmatic about anything in medicine) I do not deny the possibility of a symptomless or practically symptomless gonorrheal urethritis in the male, still such cases, if at all existent, must be extremely rare. This is not, however, the case with women. A woman may go through an acute gonorrhea from beginning to end without knowing it, may have a chronic gonorrhea for years without being aware of its existence, often sincerely believing that she is perfectly well. A man is not used to having pains or burning in his urethra, nor is he used to having any discharge from it. At the least pain or scalding, or the least appearance of discharge, he knows there is something wrong with him. The urethra when infected in women does not give as severe symptoms as inflammation of the urethra in men, and besides in many cases the female urethra escapes infection, the infection being limited to the cervix alone or to the cervix and Bartholin's glands.

A woman is used to pains, the premenstrual pains with which many of them suffer are severer than the pains caused by the gonorrheal infection; and they often have a leucorrheal discharge of greater or lesser degree. An increase in the amount of secretion or in its color and consistency does not attract their attention. It is for this reason that many

women harbor the gonococcus for months before applying to a physician, and some of them never apply at all. It is as a rule when the discharge is very profuse, offensive and irritating, when urination is painful and burning, or when there is a sharp salpingeal attack, that the physician's aid is invoked.

I repeat that many women go through life with a chronic gonorrheal cervicitis, with an abundant discharge containing numerous gonococci, and use no treatment except an occasional douche, because they are under the impression that they are suffering from the ordinary leucorrhea or "whites" (just as if leucorrhea itself did not require intelligent medical treatment).

I do not wish to be understood as claiming that gonorrhea in the female is always of a mild character, pursuing a subacute or symptomless course. I mean to say that such are the vast majority of cases which present themselves to the physician who has a "respectable" practice. In the vast majority of cases of respectable married women the disease pursues such a subacute course. Why? Because in them the infection when it takes place is usually the result of *chronic* gonorrhea in the husband. No half-way respectable man will enter matrimony when suffering with an acute gonorrhea, and only an exceptionally brutal or weak-minded husband, who, straying from the path of marital fidelity, has acquired an acute gonorrhea, will continue to have relations with his wife. And here is the point I wish to make. When the infecting man is suffering with a chronic gonorrhea, the infection in the woman *usually* pursues a subacute or chronic course. But when the man has an acute gonorrhea then the infection in the woman may from

the very beginning assume a superacute, even fulminant character. And the rapidity with which the infection may show itself is remarkable. While several days usually elapse between the infecting intercourse and the first symptoms, there are cases in which the latter show themselves in 24 hours, and I have had a case where a bride, a girl of twenty-one, had her first intercourse at midnight, and the following noon she began to complain of burning, irritation, scalding urination, etc. In short, the symptoms showed themselves in twelve hours after the infecting intercourse. In her case the gonorrhea proved of a virulent character; the contributing factors were the frequent repetition of the act during the night (five or six times) and the violence with which it was performed. The defloration, which leaves an open raw wound, was also a contributing factor in this case, as it is in many other cases.

While it usually takes months for a salpingitis to develop as the result of gonorrheal infection, there are cases in which distinct symptoms of inflammation of the Fallopian tubes may develop within a few days, or even *within a few hours* after an infecting intercourse. In such cases we are forced to believe in the suction action of the uterus. It is impossible to believe that the infection reached the Fallopian tubes by continuous extension, within such a short period. It is more plausible to believe that the infection took place by the infecting, gonococci-containing material being sucked up into the uterus and into the Fallopian tubes. This appears to be more likely from the fact that a gonorrheal salpingitis may exist without an intervening endometritis or metritis.

The symptoms in an acute or superacute case of gonor-

rhea may be very severe. Within several days after an infecting intercourse, and sometimes within several hours, the latter particularly in young virgin brides and still more particularly if the act is performed stormily and repeatedly, the woman begins to complain—or if not to complain, then to experience, because many of them do not complain until their condition becomes unbearable—of a burning and itching in the vulva and vaginal introitus, of frequent urination, accompanied by strangury, and a scalding sensation. A discharge soon makes its appearance, which, according to the severity of the case, may be creamy, cream-yellow or greenish. It may possess little odor or be extremely offensive. It is often very irritating, eroding the skin with which it comes in contact and causing pruritus and intertrigo around the genitals, anus, thighs, etc. If proper cleanliness is not observed, the infecting discharge may invade the anus and a gonorrheal proctitis be the result. There is usually an elevation of temperature, 100° to 102° F., there may also be a chill, and the feeling of general malaise may be quite pronounced. If the infection involves also the Fallopian tubes, then all the general symptoms may be greatly aggravated. The chill may be quite severe, the temperature may go up to 103° or even 104° F., the abdomen is tender, and the feeling of malaise may be so severe as to create apprehension of a general peritonitis.

The diagnosis of an acute or superacute case of gonorrhea in the female presents no difficulties. The history and the symptoms as related by the patient are alone sufficient. Inspection of the genitals, covered with pus, the introduction of a speculum, which shows us an inflamed

eroded cervix, bleeding at the slightest touch, and bathed in pus which oozes from its external os, make the diagnosis certain. No bacteriological examination is necessary.

THE TREATMENT

I know of no condition in medicine where *noli nocere* is more important than in treating gonorrhea of the female. It is just as important to know what not to do and not do it as it is to know what to do and to do it. In other words, negative treatment is here as important as positive treatment. In fact abstaining from doing certain things is often the more important part of the treatment.

The great, the paramount point in treating gonorrhea in women is to prevent the disease from passing the internal os and spreading through the endometrium into the tubes, and from there into the ovaries and peritoneum. As long as we can keep the gonorrheal process limited to the cervix and the other external genitals, gonorrhea is not a terrible disease. We can handle it without great difficulty and cure it eventually, though the time required for a cure may in some cases be exasperatingly long. It is when the gonorrheal process is extended above the internal os, that we become helpless. For after the process has involved the endometrium and the Fallopian tubes there is no medical treatment; there is only expectant and surgical treatment, which is of course no treatment at all in the true sense of the word. Removing the tubes may be necessary to save the patient's life, but to cut out an organ is not to cure it.

Unfortunately it is here that physicians have sinned most pitifully. I have no hesitation in saying—it is pain-

ful to say it but nothing is gained by hiding the truth—that a large percentage of cases of endometritis and metritis, salpingitis, and peritonitis, that thousands and thousands of cases requiring surgical interference are due directly to the physician's well-meant energetic treatment. The introduction of syringes and probes into the cervix, the scraping and cauterizing with strong caustic solutions, are in many instances directly responsible for the extension of the inflammation and for the aggravation of the patient's condition. Those who know anything about the treatment of gonorrhea in women and are not obsessed by the *furor operandi,* know that we get the best results by the gentlest methods and mildest applications.

I consider these prefatory remarks of extreme importance, for until the physician is imbued with the feeling, saturated with the conviction, that brutality is not a necessary element in the treatment of gonorrhea, that too energetic treatment is often injurious instead of beneficial, that the uterine cavity must at all hazards be protected from an extension of the inflammation, and that he at least must not be the causative factor of that extension, until he is convinced of all these things he is not a safe person to undertake the treatment of a case of gonorrhea in a woman.

General Treatment. The general treatment of acute gonorrhea in the female can be expressed in one word or phrase: rest, taking it easy. If we wish to avoid a salpingitis or extension of the inflammation above the external os this is a *conditio sine qua non.* It is unfortunate that many women, and respectable married women at that, still must keep on doing their household work or other heavy work. Where it is unavoidable it is unavoidable and that is all

there is to it, but the proper thing would be to put the woman to bed, or at least keep her in her room for a couple of weeks and have her take things very easy.

Where there is a considerable rise in temperature or symptoms of salpingitis seem to be threatening then putting the patient to bed is imperative and applying an ice-bag to the abdomen is very useful.

Coitus must be absolutely interdicted. One can think of nothing more harmful, more dangerous, than coitus for a woman affected with gonorrhea. Intercourse is bad for a male with acute gonorrhea, but it is very much more dangerous for a female gonorrheic patient. It not only aggravates the existing condition, increasing the inflammation in the vulva, urethra and cervix, but it is about the surest way to cause a salpingitis. I have known cases which were progressing very nicely, which were on the point of recovery, but which became suddenly aggravated and in which symptoms of salpingitis became evident immediately after coitus. So this must be forbidden absolutely in all acute and subacute cases of gonorrhea. No exceptions can be permitted. Whether this extension of the inflammation is due simply to the engorgement of the uterus and other genital parts induced by the coitus or to a certain suction and peristaltic action of the uterus is immaterial. Both may be causative factors. The fact remains that coitus is a dangerous procedure, which may lead to a fatal issue, for a woman suffering with acute or subacute gonorrhea. A man who forces a woman in such condition to submit to intercourse is a criminal brute and the woman who submits to it is a pitiful slave. And still the woman is often forced to submit to it, the husband thinking that if he

uses a condom and is not too violent he has done everything necessary to protect himself and her.

As far as the diet is concerned, little or no change need be made in it if the urethra is not involved. Spices and alcohol, however, are best omitted, as they do perhaps cause congestion of the genitalia and thus aggravate the condition. But where there is a urethritis practically the same restrictions are indicated as in gonorrhea of the male.

As far as internal treatment is concerned, none is necessary unless the urethra is involved. When the urethra is involved and urination is painful, then we may give the same balsams, hyoscyamus and alkalies as we do in urethritis of the male.

The Local Treatment. If the local treatment in male urethritis is important, it is much more so in gonorrhea of the female. In fact it is the only part of the treatment from which definite results can be obtained, the internal treatment being merely occasional and auxiliary. The treatment to be successful must be of two kinds; one administered by the physician, the other administered by the patient or to the patient in her home. The home treatment consists in the use of injections and suppositories. The medical treatment, that is the treatment on the part of the physician, consists in local applications, that is in swabbing and painting the parts, and occasionally in cauterizing. Both parts of the treatment are necessary, as they supplement each other.

As stated before, the home treatment consists in the use of vaginal douches and suppositories. The injections that I prefer to all others are iodine, lactic acid, and a combination of alum, zinc sulphate and copper sulphate. Where

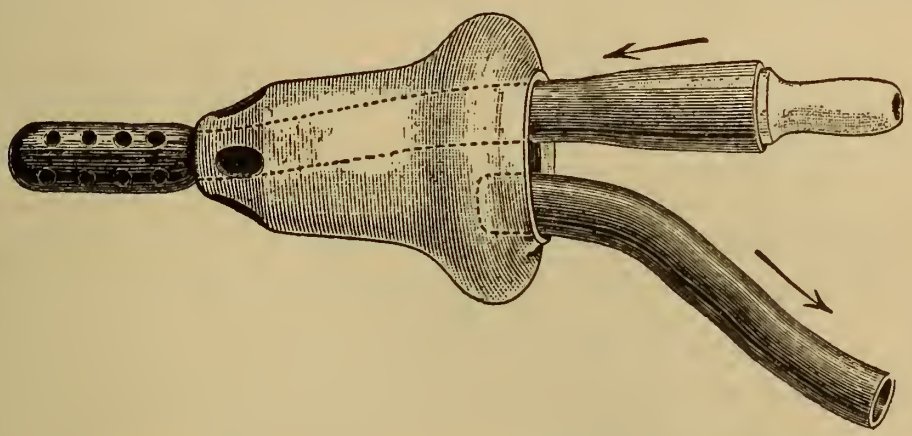
the discharge is very profuse the injections should be given as often as four times a day. After the discharge becomes less profuse, twice a day and then once a day is sufficient. The iodine injections are made by adding one tablespoonful of tincture of iodine to two quarts of hot water. In some cases this is too irritating and we may commence with a teaspoonful to two quarts of water. The lactic acid is used in the strength of 1-500 to 1-1000. The alum, zinc, copper combination has the following formula:

Aluminis ..... ℥iv
Zinci sulphatis..... ℥i
Cupri sulphatis..... ℥iv
Sig. Tablespoonful to 1 or 2 quarts of water.

The injections or douches should invariably be taken in the recumbent position, the patient lying flat on her back on a flat douche pan. It is better when the buttocks are raised, so that they are on a higher level than the rest of the body. The injection is given very slowly, the fountain syringe hanging but high enough to permit the liquid to run out. After each injection the patient should remain for half an hour or at least fifteen minutes flat on her back. This permits some of the liquid that remains in the vagina to bathe the vaginal walls and the cervix. In the average case I order two vaginal douches a day: in the morning, either the iodine or the lactic acid solution, in the evening the astringent powder. Where three or four injections a day are ordered they are used in alternation. There is no doubt as to the good effect of these injections. Not only do they keep the parts clean and mechanically remove the discharge, which is such a good nutrient medium for the

various saprophytic bacteria, but they also have a gonocidal effect, heal erosions and congestions and help materially the doctor's work.

The nozzle which is used for the vaginal injections is not a matter of indifference. I recommend the nozzle, an illustration of which is reproduced herewith. It possesses two important advantages. First, it can close the vaginal outlet completely and tightly, so that by closing the clamp of the outlet pipe, the vagina can be ballooned out, filled



Vaginal Nozzle, possessing several advantages

with the antiseptic solution and every part of the cervix and the vaginal folds thoroughly cleansed. Second, with it we can use solutions of much higher temperatures than without it. As is well known, the vagina and cervix can stand very high temperatures; it is the vulva that is sensitive, and with the ordinary pipe or nozzle the heat of the outflowing liquid causes discomfort or burning. With this nozzle the outflowing liquid passes through a separate pipe and does not touch the vulva. The use of a solution of a high temperature (120° F. and higher) possesses a double value. It is in itself gonococcocidal, and helps in the absorption of exudates if any be present.

In some severe cases I also order suppositories, one suppository to be introduced at night. The suppositories usually contain as their active constituent either protargol or the lactic acid bacillus. The formulas of these suppositories are as follows:

℞
Protargol ..... gr. v
Olei theobromatis..... 3i
M. ft. suppos. ovale vel. glob. No. I
D. Tal. Dos. No. XII.
Sig. One at night; to be inserted high up in the vagina.

℞ Bacillus bulgaricus tablets, gr. x
Ol. theobromatis, gr. xxx
M. f. suppos. No. I. Tal. Dos. xx
S. One night and morning.

Instead of suppositories, the bacillus bulgaricus may be prescribed mixed with sugar and blown into the vagina by means of an insufflator.

The Doctor's Treatment. The patient comes to the office always immediately after having taken a thorough douche. The only time the douche is left out is when the doctor wants to make a bacteriologic examination of the secretions. He wipes off the vulva, examines carefully for any inflamed points or erosions, and if there are any he touches them with silver nitrate 10 to 50 per cent., or even with the silver nitrate stick. The ducts of Bartholin's glands are examined carefully, an attempt is made to express any pus, and if found necessary they are cauterized with a thin probe or a 10 per cent. silver nitrate

solution is injected into them by means of a hypodermic syringe with a blunted needle. The urethra is next examined and if affected is swabbed with a 5 to 10 per cent. silver nitrate solution. As a rule the urethra responds to treatment very readily. I have no use for any urethral bougies or suppositories in women any more than I have for them in men. The vagina is next examined with a speculum and a good light, and erosions, if any, are touched with silver nitrate solution, 10 per cent., or tincture of iodine full strength. Lactic acid full strength is also a good application.

We then come to the cervix, which is the most important part of the treatment. We wipe it off as carefully as we can, introduce several cotton-wound probes and try to remove the cervical plug. The entire cervix is then painted with tincture of iodine, and a thin cotton swab dipped into tincture of iodine is gently introduced into the os. Care is taken not to pass the internal os, though if it should pass the danger of extension of the infection would be nil or practically nil. Iodine is one of the best agents we have in treating gonorrhea in the female, and while I still use silver nitrate applications to the vagina, vulva and urethra, as far as the cervix is concerned I limit myself exclusively to iodine. My results have been much better since exchanging silver nitrate for iodine, because silver nitrate denudes the delicate surface of the cervix and may perhaps be influential in causing an extension of the inflammation. Instead of a probe a thin long uterine syringe may be used and a few drops of tincture of iodine may be deposited in the cervix.

When the infection has spread into the endometrium and

the tubes, then it really ceases to be a genito-urinary and becomes a gynecological case. But the gynecological surgeon can do medicinally no more than the ordinary physician unless it is a case which demands operation. The proper treatment of endometritis and salpingitis is rest, hot or cold applications by means of compresses or poultices to the abdomen, and tampons of gauze saturated in glycerite of boro-glycerin or ichthyol-glycerin or thigenol-glycerin. That is all we can do and that is all we should do. Injecting or swabbing the uterus with caustic or strong antiseptic applications, scraping or curetting the uterus, all these are brutal and useless procedures; not only useless but injurious. They may do good in some cases but the cases in which they do harm are so much in preponderance that no conscientious physician should employ them. We can never be sure of removing all the germs by these measures, while we are pretty sure to cause their further spread and development and to aggravate the inflammation. Curetting is not abused so much now as it was formerly, but it is still practiced ten times more often than it should be. Hot baths, particularly pretty concentrated sea-salt baths, are useful in aiding the absorption of exudates. And I repeat that unless the case is a distinctly surgical case, demanding surgical intervention, this is all the gynecologist, genito-urinary surgeon or general practitioner can do. An attempt to do more is not generally dictated by a desire to benefit the patient.

Vaccinotherapy. The Fallopian tubes not being accessible to local treatment, we are justified in using antigonococcic vaccines. They seem to be useful in a small percentage of cases.

VENEREAL WARTS (CONDYLOMATA ACUMINATA) IN WOMEN

Venereal warts of the acuminate or pointed variety about the genitals are due to uncleanliness of any sort, but their development is particularly favored by gonorrheal discharge. Whether they are caused by a special micro-organism or are due simply to the irritation caused by the gonorrheal discharge, the various cocci found later being secondary, has not been determined.

While venereal warts occur in men too, they are much more frequent in women and in them they may attain an enormous size. When of large size they show great similarity in appearance to a cauliflower. Their favorite places are the labia, the anus, the clitoris, the vaginal walls and occasionally the cervix. It is on the labia and around the anus where they attain their largest size. Pregnancy favors the formation of condylomata acuminata on account of the increased vascularity of the parts. While in men venereal warts are sometimes dry, they are generally moist in women, and are awfully ill-smelling. The smell is sometimes sufficient to render even the hardened physician sick at the stomach.

In spite of their disagreeable and sometimes formidable appearance they are readily amenable to treatment. They can be cauterized with the actual cautery or carbolic, chromic or lactic acid. Either one of the three acids in full strength is satisfactory. After the warts have been cauterized either a compress of 1 per cent. of lactic acid, or of 5 per cent. salicylic acid in alcohol, may be applied. Another method of treating them is spraying them thoroughly

with a concentrated solution of resorcin, and then applying dry powdered resorcin to every part. A few applications of the resorcin shrivels them up and they disappear. Excision of the mass, with ligation of the bleeding vessels, etc., is in my opinion contraindicated, for I have never found it necessary to have recourse to such strenuous measures. Painting with pure tincture of iodine or with 20 per cent. solution of salicylic acid in alcohol will also accomplish the purpose in many instances.

GONORRHEA AND PREGNANCY

Pregnancy is of course no barrier against gonorrheal infection, nor is gonorrheal infection a barrier against pregnancy, though it makes pregnancy less probable, less frequent. The two may occur at the same time. It unfortunately happens not infrequently that within the first few days of her married life a woman will contract both gonorrhea and pregnancy (contract pregnancy is not the proper and accepted term, but I will let it stand, for with some women to contract pregnancy is a greater misfortune than to contract a disease). I have had a case of a woman of twenty-two who both contracted gonorrhea and became pregnant during the wedding night.

The possibility of gonorrhea not being excluded in the most respectable married woman, it should be the duty of every physician engaged to attend a case of confinement to examine the woman by the aid of a speculum to ascertain whether or not she has any discharge, and should there be any, to make sure of its character. This is necessary both for the sake of the woman, to prevent any gonorrheal flare-up in the puerperium, and for the sake of the child to pre-

vent the terrible misfortune of ophthalmia neonatorum and possible blindness.

If the woman is found to be suffering with gonorrhea, then the same measures are to be applied as in a non-pregnant woman, except that greater caution is necessary in making cervical applications, etc., as too energetic handling of the parts may induce an abortion [though it is a question whether in a woman suffering from gonorrhea an abortion would not be preferable to carrying the child to term and subjecting it to the risk of gonorrheal ophthalmia].

I emphasized the importance of rest in the treatment of gonorrhea in the female. When gonorrhea is associated with pregnancy rest becomes doubly important.

It is in cases where gonorrhea is associated with pregnancy that we occasionally see the very worst kind of condylomata acuminata. This should be treated according to the rules outlined above.

Gonorrhea in the puerperium may become a very dangerous disease, but generally only on account of the association with it of various other bacteria, chiefly the streptococci. Douching, ice-bag to the abdomen and rest in bed are the principal elements of the treatment. One of the bad results of gonorrhea in the puerperium is that it interferes with the proper involution of the uterus. This tendency must be counteracted by the oral or subcutaneous administration of ergot and pituitary preparations.

CHAPTER XXXIII

VULVO-VAGINITIS IN LITTLE GIRLS

Vulvo-vaginitis is a very common affection among children of the poor, and in institutions. In the latter it used to be one of the commonest and most annoying troubles we had to deal with, one little girl with vulvo-vaginitis often infecting an entire ward or dormitory. In former years the dangerously infective character of vulvo-vaginitis was not known, and infection was readily carried by towels, linen, toilet seats, bed pans, bathtubs, syringe nozzles, thermometers, the nurse's hands, etc. Now very great improvement has taken place in this respect, the disease being considered as contagious as measles and the greatest care being taken in isolating a vulvo-vaginitis patient or pupil from the rest. The leading hospitals now do not admit a female child to any of the wards without a vaginal smear being previously taken and the presence or absence of gonococci being ascertained.

ETIOLOGY OF VULVO-VAGINITIS

I have not entitled this chapter "Gonorrheal Vulvo-vaginitis" and the reason for it will be soon apparent. Vulvo-vaginitis means simply an inflammation of the vulva and vagina, and it may be due to various causes, such as uncleanliness, decomposing smegma, decomposition of urine from incontinence, pin worms, trauma from masturbation or

attempted rape, etc. Other varieties are due to the pneumococcus or the diphtheria bacillus. Then there is a catarrhal variety which is very infectious and in which the gonococcus cannot be found.

Nevertheless, granting the variety of causes of vulvo-vaginitis in children, the chief cause, the cause in the vast majority of cases, will be found to be the gonococcus. But here is the point, a point which I consider of great importance: I claim, as I have claimed for many years, that the gonococcus which is found in the vulvo-vaginitis of children is not the same gonococcus with which we have to deal in the ordinary gonorrhea of the male or the ordinary gonorrhea of the adult female. It may be that it is not the gonococcus at all, but a coccus which presents the morphological and cultural characteristics of the gonococcus but still possesses an entirely different virulence—or, we will say that it is the gonococcus but of a different strain, which is merely begging the question. I base my conviction upon two facts. If the gonococcus in vulvo-vaginitis of little girls were of the ordinary variety with which we are in the habit of dealing, the disease would be a much more severe infection than it is, particularly if we take into consideration the delicate mucous membrane of the vulva and vagina in little girls. As will be seen in speaking of the symptomatology, vulvo-vaginitis in children is very frequently an extremely mild affection. If the virulent gonococcus were the cause, much more damage, much more pain, and much more inflammation would be the result. Second, when we do have to deal with gonorrhea in a little girl caused by intercourse, by rape, then the infection is of a much more severe character. Of course the rejoinder may

be made that in such cases there is an additional element, namely the trauma. But there are many cases in which no trauma has been inflicted, in which no penetration has taken place, where there has been merely contact of the penis with the vulva, and still the inflammation is of a much severer character. We are therefore bound to maintain that the infective germ in so-called gonorrheal vulvo-vaginitis in girls is a coccus having the morphological and cultural characteristics of the gonococcus but of much lower virulence.

SYMPTOMATOLOGY

Generally speaking, vulvo-vaginitis in children is a mild infection. A child may have it for several weeks or months without being aware of it, without telling anything about it, the diagnosis often being made by the mother, who notices a creamy discharge on the linen or underwear. And this is the principal symptom in little girls, the discharge, which may be exceedingly profuse, bathing the vulva, vagina and cervix. By looking through a urethroscopic tube or a small vaginal speculum the cervix is often found bathed in a pool of creamy discharge. There is this great difference between gonorrheal infection in little girls and adult females, that while the adult vagina is extremely resistant to the gonococcus, a gonorrheal vaginitis being one of the rarest things in practice, the delicate mucous membrane of the child's vagina offers little resistance to the gonococcus and becomes often inflamed and eroded. In severe cases there is a simultaneous infection of the urethra, Bartholin's glands, the vulva, vagina and cervix, and the child may complain of burning at urination, itching and

pain around the vulva and anus, and slight pain in the abdomen. There may be a slight rise in temperature, up to 101° F., and in some instances the attack is sufficiently acute to give rise to a chill and fever. A mild arthritis may take place within the first weeks of the infection, but as a usual thing it comes later on.

COMPLICATIONS

Very fortunately, the most serious complication of gonorrhea in the adult female, namely inflammation of the Fallopian tubes or salpingitis, is so rare in little girls as to be practically negligible. Of course it is possible that a mild inflammation of the Fallopian tubes takes place, sufficient to occlude the opening but not severe enough to give any symptoms. This is possible, but as these cases give no subjective or objective symptoms they cannot be diagnosticated. This freedom from salpingitis is due to three causes. The complete closure of the internal os offers quite an effectual barrier to the passage of the gonococcus; second, menstruation, which is an important factor in favoring the growth and spread of the gonococcus, is absent; third, coitus, which is one of the most positive and most injurious factors in causing salpingitis—the inflammation often making itself apparent almost immediately after a more or less stormy sexual act—is here also absent. What is said about salpingitis also applies to peritonitis, the latter often being a consequence of the former. In the very few cases where it does take place it is generally localized and followed by rapid recovery unless too meddlesome treatment interferes.

While, as stated, vulvo-vaginitis is a comparatively mild infection as far as its symptomatology is concerned, it never-

theless has a disastrous effect on the child who is unfortunate enough to become a victim of the disease. First of all, it is an extremely long disease. It usually takes months, and these months may run into years, before a complete cure is affected. Second, relapses and exacerbations are quite common. Third, the treatment is a disagreeable one for the child, and is occasionally painful. Fourth, it has a disastrous effect on the child's *morale;* most parents, though they may love the child most affectionately, look somewhat askance at it; and continuous vaginal treatment somehow or other has a humiliating effect on the child, which begins to consider itself as an outcast, as something apart from other children. Fifth, the child's education is very frequently seriously and permanently interfered with, because it must often be taken out of school, whether public or private, and private tutoring is of course feasible only for the few. Sixth, and this is a point not sufficiently appreciated by the profession and the laity, but it is an important point nevertheless: vulvo-vaginitis in children has unfortunately a disastrous effect in *hastening the sexual maturity of the child.* Whether this is due to the congestion of the organs produced by the inflammation, or to the speculum examinations, paintings, douches, applications, tampons, suppositories, etc., the fact remains that girls who suffer from vulvo-vaginitis in childhood become sexually mature considerably earlier than normal girls of the same class, stratum and climate, and their demand for sexual satisfaction is much more insistent. Seventh, a mild vulvo-vaginitis may be the cause of permanent sterility.

PROPHYLAXIS

It will therefore be seen that vulvo-vaginitis is a calamity, and everything possible should be done to guard female children from contracting it. *All* children should *always* sleep alone. Under no circumstances should a child sleep with anybody else, be it a sister, a mother, a friend, a governess, or a servant girl. People should be very careful in sending their children to spend a night or two with some friends. The friends may be all right, but still a friend of the friends or a relative of the friends may not be. I have known several cases where the origin of the vulvo-vaginitis could be traced to little girls spending a week at the house of some friends where a boarder or relative was infected with gonorrhea. That children should be kept away from associating or playing with adults or other children who are known to have gonorrheal infection goes without saying. The child's genitals should be frequently inspected by the mother, and scrupulous cleanliness by frequent bathing, sponging with warm solutions and powdering, should be maintained. The toilet seats in school should receive special attention. The wooden seat is a menace because it often harbors gonorrheal pus from either the female or male genitalia, and the only proper seat is one with the anterior portion cut away, the so-called U-shaped seat. Such seats should become obligatory in all schools, railway stations, dispensaries and other public places.

TREATMENT

The treatment of vulvo-vaginitis in little girls is still in a very unsatisfactory condition. On account of the small-

ness and inaccessibility of the parts, thoroughgoing treatment is frequently impossible. The *noli me tangere* superstition that the hymen is something sacred and must not be ruptured under any circumstances makes the treatment still more difficult. Strictly speaking, vulvo-vaginitis should be a hospital disease, but on account of the length of time required for a cure this is frequently impracticable or impossible. But a competent nurse, or barring that, a firm intelligent mother, is a *sine qua non.*

The keynote of the treatment of the vulvo-vaginitis of children, as well as of gonorrhea in adult females, is gentleness. Whatever we do we must do no harm, and certainly we must do nothing which may favor an extension of the inflammatory process above the internal os. The treatment of vulvo-vaginitis in children consists in cleanliness, irrigations of the vaginal canal, instillations and suppositories.

Locally, erosions, if any, must be touched up with silver nitrate or iodine. The vulva should be washed several times a day, depending upon the amount of the discharge, and protected with a gauze pad, over which a pair of drawers or knickerbockers are used which the child itself cannot undo. The washing of the vulva may be done with plain soap and water or boric acid solution, or a solution of aluminium acetate.

Irrigating the vagina should be done by the aid of a fountain syringe and a small glass nozzle. About a pint of a solution should be used at a time, and the pressure should be low. The best solution for vaginal injections is a weak 1-1000 lactic acid solution or a weak solution of tincture of iodine (½ to I teaspoonful to a quart of water). We do not expect to destroy all the germs by the vaginal in-

jections, but we do destroy some; and besides, leaving the pus in the parts produces erosions, chafing, and gives rise to condylomata acuminata. So even the mechanical removal of the pus does good.

Where an inspection of the vagina shows erosions (and no treatment can be satisfactory unless inspection is made by means of a small vaginal speculum—not a urethroscopic tube—and strong light) they must be touched up with a 10 per cent. silver nitrate solution or with full strength tincture of iodine.

After thorough douching, it is well to instill in obstinate cases 30 to 60 minims of a 5 per cent. protargol solution, or a 2 per cent. silver nitrate solution. As conditions improve the instillations need only be repeated once or twice a week.

While I have no use whatever for suppositories and bougies in male gonorrhea, they are of some use in gonorrhea in the female, and I often prescribe a small 2 per cent. protargol suppository as follows:

℞

Protargol ..... gr. ss
Acidi borici ..... gr. v
Ol. theobromatis ..... gr. xxv
M. f. suppos. No. i. Tal. Dos. No. xxx
Sig. One suppository at night.

From the use of kaolin or kaolin and yeast I have abstained in little girls: first, because they are difficult of introduction and application; second, the powder forms hard concretions which are difficult of removal, which is not the case with adult females.

Vaccines I do not use at all, for I have not found them of the slightest value. They frighten the child and cause it unnecessary pain without producing the slightest beneficial effect. I am glad to see that other investigators are coming to the same conclusion.

CHAPTER XXXIV

GONORRHEAL OPHTHALMIA — GONOCOCCAL INFECTION OF THE EYE. OPHTHALMIA NEONATORUM. OPHTHALMIA OF THE NEWBORN

I did not intend to devote any space in this book to a discussion of gonorrheal infections of the eye, for in my opinion eye affections of all kinds, and particularly those of any seriousness, should be treated by a specialist and not by a general practitioner; and in the large cities gonorrheal inflammations of the eye are immediately referred to an ophthalmologist. But I recollected that this book is written for the general practitioner in all parts of the country, and there are thousands of places where no specialist is available. With or against his will, the general practitioner is forced to treat such cases, and it is therefore necessary to include a chapter on the subject.

Gonorrheal ophthalmia in adults is generally due to direct infection by the fingers, soiled towels, etc. While metastatic infection of the eye, by the toxins reaching the organ through the circulation, is not an impossibility, still such cases are so rare that they may be disregarded. In newborn infants the infection takes place directly, by the eyes touching the cervix and vaginal canal or by the infecting material being transferred from the baby's body. There are also cases where the infection of the infant's eyes takes place in utero, the

gonococcus penetrating the unruptured membranes, or the membranes rupturing prematurely. In such cases the infant is born with a fully developed ophthalmia, or it may even be born totally blind. Fortunately such cases are rare.

Prophylaxis. Here if anywhere prophylaxis is infinitely more important than cure. I make it a rule to instill in every adult gonorrheic a wholesome fear of infecting his eyes. I tell him—and her—that carelessness may mean the loss of the eyesight, and I give them instructions how to be careful, how to wash their hands after touching the genitals, even ever so lightly (see Instructions to Patients, in the chapter on "The Treatment of Gonorrhea"). And I can assure you that they follow instructions. Nothing people are so much afraid of losing as their eyesight, except their minds.

It is stated, and the statement may be accepted as correct, that in civilized (?) countries about one-third of all the blindness is due to ophthalmia neonatorum. The horribleness of the disease therefore requires no emphasis, no discussion. And its prophylaxis becomes a matter of the greatest importance, imposing a grave responsibility upon every attendant connected with bringing a child into the world.* The mother if afflicted with gonorrhea must be treated with frequent non-irritating but mildly antiseptic douches, etc. But even if the discharge is apparently purely leucorrheal, treatment should not be neglected. For a leucorrheal discharge may also give rise to infection.

The child as soon as delivered must be given special atten-

* The somber subject of blindness from gonorrheal ophthalmia in the newborn has been the theme of several stories. It is treated in "The Rise of Richard Martindale" in the author's "Stories of Love and Life"; also in Upton Sinclair's "Sylvia's Marriage."

tion with reference to its eyes. If we have known the mother before delivery and are *sure* that she is all right, then merely wiping (wiping always away from the eyes, and not towards them!) the infant's eyes with cotton swabs wet with boric acid or saline solution is sufficient; but where we suspect or know that the mother has had a gonorrheal discharge, then besides the preliminary cleansing we must instill into each eye some gonococcocidal solution. Credé may well be considered one of humanity's great benefactors, for by his investigations and teachings he has saved the eyesight of thousands and thousands of children. In cases that are strongly suspicious it is still advisable to stick to his original recommendation—the instillation into each eye of two drops of a 2 per cent. solution of silver nitrate.

In the general run of cases, however, a 1 per cent. solution of silver nitrate (1 drop in each eye) is sufficient. Instead of the silver nitrate we may use a 5 per cent. solution of sophol or protargol or a 15 per cent. solution of argyrol. These organic silver compounds have the advantage over silver nitrate of being but slightly irritating. To judge by the latest reports, sophol is the best of all silver preparations both in the prophylaxis and the cure of ophthalmia neonatorum.

Diagnosis. The diagnosis of gonorrheal inflammation of the eye is not difficult. The disease starts with a red inflamed conjunctiva and with an excess of secretion, which may be serous in the beginning but soon becomes purulent. The eye is badly swollen and glued together. It is sometimes so strongly glued together that it requires quite some washing and manipulating before the lids can be separated. The separation of the lids is always a disagreeable, painful

process, and sometimes there is so much pus behind the glued lids that when they are opened the pus spurts out. The doctor, the nurse or whoever attends to a child or an adult with gonorrheal ophthalmia must very carefully guard against infection by the pus. The finding of the gonococcus in the pus make the diagnosis positive.

Treatment. The treatment of gonorrheal inflammation of the eye must be exceedingly gentle and at the same time exceedingly vigorous, the word "vigorous" referring to the continuous, unremitting care and watchfulness.

If only one eye is affected the first thing to do is to protect the other eye with a Buller's shield, which is simply a watch-glass held down over one eye with strips of adhesive plaster. But the eye must be watched carefully, and as soon as signs of inflammation in it appear, as they unfortunately only too often do, the shield must be removed and the eye treated like the other eye.

The treatment consists in very frequent—some prefer continuous—irrigation or washing of the eye with a 2 per cent. solution of boric acid or 1 per cent. solution of sodium chloride. The water should be warm, of a temperature between 100 and 110, and poured from a glass vessel with a spout or from an irrigator hanging very low. The force with which the water touches the eye must be very slight. The washing or irrigation should be done every hour or half-hour, or after decided improvement has set in every two hours. Besides the washings or irrigations, instillations into the eye of a gonococcocidal solution is absolutely necessary. A 2 per cent. solution of silver nitrate is efficient, but on account of the pain it sometimes causes it is often difficult to apply thoroughly. To derive the full benefit of

the application the eye-lid must be fully everted and the solution dropped in; otherwise it touches only a portion of the eye-lids and the rest is squeezed out. Instead of silver nitrate solution we can use with great satisfaction a solution of sophol 5 per cent., protargol 5 per cent., or argyrol 25 per cent. These instillations are to be repeated every two to four hours.

Where the cornea is involved the instillation of atropine sulphate or eserine sulphate (2 to 3 drops of a ½ per cent. solution) is necessary.

The treatment with the irrigations and instillations must be continued, though at rarer intervals, for several days after all signs of pus have disappeared, because it is possible that the gonococcus may remain somewhere dormant and by discontinuing treatment too soon a recrudescence of the inflammation may take place.

METASTATIC GONORRHEAL CONJUNCTIVITIS

There are patients who with each fresh attack of gonorrhea get a conjunctivitis of greater or lesser severity. Of course it is possible that the conjunctivitis is due to direct contagion but that its mildness is due to a very low grade inflammation, the inflammation being mild on account of a certain amount of immunity developed within the patient, but it is hardly likely. If the gonococcus penetrates into the eye it generally causes a good deal of mischief. We are justified therefore in assuming that this conjunctivitis is due to a metastatic infection, to the action of gonotoxins circulating in the blood on the conjunctiva. The treatment consists in warm or cold boric acid compresses, and in the instillation into the eye of a few drops three times a day of

a mild zinc sulphate solution: zinc sulphate one or two grains, water one ounce. The following is a good formula:

℞ Zinc sulphate ..... gr. ij
Boric acid ..... gr. x
Wine of opium ..... m. x
Distilled water ..... ℥ 1
Sig. Three drops into the eye 3 or 4 times a day.

NOT ALL CASES OF OPHTHALMIA NEONATORUM DUE TO THE GONOCOCCUS

Before concluding this chapter I consider it necessary to emphasize one point, namely that not all cases of ophthalmia neonatorum are due to gonorrheal infection. Ignorance of this point may lead to the gratuitous breaking up of a home. A little knowledge is a dangerous thing. In former years women knew nothing about such matters. Whether themselves diseased or whether their children lost their eyesight a few days after birth, it did not come to their minds to connect these things with their husbands: it was a dispensation of Providence, and that was all. Now they have learned something. They know that the husband's past may have something to do with their or their children's illness. But they have gone to the other extreme and, like all people with little knowledge, they are apt to take any little information they have gathered for absolute. A large percentage of cases of ophthalmia neonatorum is due to gonorrheal infections, but not all by any means. What the exact percentage is cannot be definitely determined. It is probably somewhere between 60 and 75 per cent., and the other 25 to 40 per cent.

are not due to the gonococcus at all, but to infection with other germs, chiefly the streptococcus. It is important that the good wife should know that when a child is born afflicted with the terrible disease of ophthalmia neonatorum it does not necessarily mean that her husband had infected her with gonorrhea. The husband may never have had gonorrhea, the cause may lie in her own vaginal discharge. Only an extremely careful and repeated bacteriologic examination can determine with absoluteness whether the discharge in a case of ophthalmia neonatorum is due or is not due to the gonococcus.

RARE COMPLICATIONS OF GONORRHEA

Such complications of gonorrhea as pyemia, septicemia, endocarditis, metastatic abscesses in remote parts of the body, erythema and various other eruptions, need only be mentioned here. It is good that a physician should know that such complications are possible. They are, however, so rare that he is not likely ever to have an opportunity of seeing a case. If he should see them, they are to be treated on general principles, like any other pyemic or septicemic infection, or like abscesses in general. Vigorous vaccine treatment will of course be unavoidable in such cases even if the results are not very promising.

The eruptions need no special treatment, but it is well to bear them in mind, so as not to mistake them for a syphilitic roseola or other syphilitic eruption, and in treating a case of gonorrhea it is also well to bear in mind that copaiba, cubebs and even santal-wood oil may occasionally give rise to a severe erythema and other rashes.

CHAPTER XXXV

MINOR POINTS *

When a patient voids cloudy urine be sure that the cloudiness is not due to phosphates before telling him he has cystitis. Add a drop or two of nitric acid to every cloudy urine.

In examining a patient's urine voided in the office place the glass receptacle in front of a gas flame or electric light. The smallest shreds and the faintest clouds of mucus can thus be detected.

When a patient is unable to void his urine in the office, leave him alone in the room, taking care to let him hear the trickling stream of a slightly open water faucet nearby. With some patients you need only to strike a certain "note" with the water faucet, and "off they go."

Pain at the end of the penis is usually referred from the prostate or the neck of the bladder. Such a pain occurs in prostatitis, in stone or gravel.

Urethral caruncle in women is a cause of frequency of

* Taken principally from the author's *American Journal of Urology, Venereal and Sexual Diseases.*

micturition. Do not forget to look for its presence before sending your patient to a specialist for cystoscopy.

Frequent micturition in women may occur without any changes in the urine and without any lesions in the bladder, as a result of uterine abnormalities.

When prescribing injections for acute gonorrhea be sure to tell the patient *how much fluid* to inject. The pain or burning sensation of an injection into the anterior urethra depends upon the amount of distention of the acutely inflamed mucosa, and hence even plain water injected forcibly or in too large amount will cause discomfort.

The normal healthy anterior urethra of an adult holds about 10 to 18 c.c. The inflamed urethra holds comfortably only 8 to 10 c.c. A urethral syringe should hold 12 c.c. (i.e., 3 drams) and the patient should inject only half its contents at first, during an attack of acute urethritis.

No one can swear that a Gram negative diplococcus which has all appearances of Neisser's germ is a gonococcus unless the organism be grown in cultures by an *expert* in bacteriology. And even then there may be just a wee bit of doubt.

A negative culture test in a man who is about to marry does not *insure* his wife against gonorrhea any more than does a negative Wassermann test *insure* her or her child against syphilitic infection.

A chronic localized patch of urethritis, especially in the neighborhood of a stricture, will give a recurrent discharge, lighted up by sexual excitement or by alcoholic indulgence.

Non-specific urethritis may be caused by intercourse with a woman during menstruation, but in all such cases be sure to look for gonococci. If any were present in the uterus or cervix they are apt to come out of their lair just at the time of the periods.

A solution of argyrol to be effective must be perfectly fresh. After it has stood six hours or more its effect begins to grow less trustworthy. This holds good with practically all the newer silver salts. Dark, well closed bottles and a dark corner are preventives against decomposition.

Always test the resiliency of a soft rubber catheter before introducing it. If the rubber warps or cracks do not use the catheter, unless you wish to risk having a piece remain in the bladder when you withdraw the instrument.

If a soft rubber catheter, especially an old one that has been boiled often, "gets stuck" in the grip of the vesical sphincter or of a stricture when you attempt to withdraw it, inject hot water into the urethra alongside the catheter, by means of a large piston syringe. The heat and pressure of the water will loosen the tight grip on the catheter and it will slip out easily.

A good way to give prolonged urethral injections (lasting fifteen minutes) is to fill the urethra with the solution,

allowing the fluid to be retained for five minutes; then let the fluid out and repeat the injection with fresh solution, to be retained five minutes. The solution is then again allowed to escape and the process repeated with a fresh portion for five minutes more. This method has the advantage of preventing unduly prolonged strain upon the sphincter and thus avoiding possible entrance of fluid into the posterior urethra.

By keeping a urethral injection in the canal for fifteen minutes or longer the effect on the gonococci is greatly enhanced. Injections squirted in and squirted out at once have very little effect.

Remember that in dilating strictures with progressively increasing sizes of instruments the safest way is to introduce at each treatment a sound or bougie of the size already used at the previous treatment, and then only to replace this smaller size by the next larger instrument. Never increase more than one or two numbers at each sitting.

The best time to pass sounds and other urethral dilating instruments is in the evening, when the patient can go home and rest, instead of continuing to go about his daily work.

Never use a sound roughened by frequent boiling or rusty from neglect. Avoid rusting by wiping sounds dry while they are hot.

The "penetrating action" of silver salts, which is so frequently praised, is not needed in the posterior urethra as

much as in the anterior. In the posterior urethra silver nitrate acts better than in the anterior, while in the latter the newer silver salts are to be preferred, as being more penetrating.

A periurethral fistula, or a paraurethral infected glandular pocket will prevent recovery from chronic urethritis and is always an open door for a reinfection. Cure all such complications thoroughly before you dismiss your patient for better or for worse.

Urethroscopy is worthless except in the hands of a man who knows what he sees when he sees it.

Even an expert can tell very little by looking through a urethroscopic tube of a caliber less than 26° F. The best results for anterior urethroscopy are obtained with a tube 28° F. or larger.

The success of Gram's stain depends on (1) a thin smear uniformly spread; (2) an overstaining with a freshly prepared anilin gentian violet solution; (3) a decolorization which is not too prolonged to take the dye out of the Gram positives; (4) under-staining with a dilute contrast stain.

Do not hope to cure a chronic gonorrhea as long as the patient has a pin-point meatus or a long tight foreskin, for these are the two great handicaps in the race to recovery.

Individuals vary greatly as regards the temper of their urethra. Always acquaint yourself with the amount of

reaction, the degree of pain produced, the extent of dilatation permissible in any individual patient before using instruments boldly in his urethra.

It is a patient's inalienable right to be protected against infection, especially venereal infection in your office. Be sure to boil the tips of irrigators, syringes, etc., before using them.

Nervous and over-anxious patients often demand daily treatment with urethral instruments "to hurry the cure." Do not be weak enough to let them come oftener than is necessary or advisable.

Over-treatment is the curse of the amateur urologist. Experience teaches that much harm and no good can come from too much local interference in urologic conditions.

Never neglect internal and general treatment in your venereal cases. Remember that iron, quinine, arsenic, cod-liver oil, etc., are made not only for the "medical case," but also for the genito-urinary patient.

Patients with strictures of the bulbous urethra must report to the surgeon once or twice a year indefinitely, for the passage of a full-sized sound, after they have been discharged as cured. They are the men whom Bazy has aptly called "the perpetual subscribers" to dilatation.

COMPARISON OF URETHRAL SCALES

French	*English*	*American*	*French*	*English*	*American*
14	7	9	25	14	16
15	7	10	26	15	17
16	8	11	27	16	18
17	9	11	28	17	19
18	9	12	29	17	19
19	10	13	30	18	20
20	11	13	31	19	21
21	12	14	32	19	21
22	12	14	33	20	22
23	13	15	34	21	23
24	14	16			

THE MATERIA MEDICA OF GONORRHEAL AND NON-GONORRHEAL URETHRITIS AND THEIR COMPLICATIONS

It has been observed that physicians who were pharmacists before they embraced the medical profession are usually successful above the average, particularly in the treatment of diseases in which drugs play an essential rôle. I have always claimed that a brief course of pharmacy should constitute an integral part of the medical curriculum. The physician who knows his drugs not merely from textbooks, but has a practical familiarity with them, knows how they look, how they smell, how they behave in relation to each other, their solubilities, their incompatibilities, is a more successful practitioner than he who is ignorant of these matters. He can help himself, he knows better how to prescribe, and he often can show some originality in his combinations. Quite the contrary is the case with physicians who know their pharmacology or materia medica only theoretically and have no idea of practical materia medica and pharmacy. They must be slaves to the textbook prescription, and when they do make an attempt at originality they often bungle in a most ludicrous manner. This is true even of some of our foremost urologists. It is pitiful to see their unfamiliarity with some of the drugs they prescribe, while of many valuable

drugs and combinations they know not even the name. It is for this reason that some of them have recourse to surgery or instrumentation where a simple drug combination properly administered would suffice.

I believe that a physician should have a thorough or at least a good knowledge of the tools he handles. His drugs are his tools, and I therefore have incorporated in this book a section dealing with the drugs used externally and internally in the treatment of gonorrhea and its complications, giving an idea of their physical appearance and properties, solubility, incompatibilities, dosage, undesirable sequelæ, etc. The physician need not read this section at one sitting, but when he comes across a drug, with which he is unfamiliar, mentioned in this book, he should refer to it.

CHAPTER XXXVI

SILVER SALTS—INORGANIC AND ORGANIC.

Argenti Nitras. Silver Nitrate

Colorless transparent crystals becoming gray or almost black on exposure to light and very soluble in water (in half a part, that is, it requires only about half an ounce of water to dissolve an ounce of silver nitrate). But the salt and its solutions should be kept in amber colored bottles protected from light. It is at once precipitated by soluble chlorides even in very dilute solutions, and is therefore of course incompatible with sodium chloride, cocaine hydrochloride, etc. But we take advantage of this property when we want to neutralize an excess of silver nitrate which has been injected or applied externally.

In the office silver nitrate is best kept in a 10 per cent. solution. But only as much stock solution should be made up as can be used up in 2-3 weeks.

In the treatment of urethritis silver nitrate occupies the first place. It is not a sovereign remedy, it is not free from decided disadvantages—for it causes pain and irritation—but if carefully and judiciously used it will do as much as any remedy can do, and in chronic urethritis it will do what no other remedy so far discovered can do. And if I were limited, in the treatment of gonorrheal urethritis to one single drug, I would select silver nitrate. Its uses are so numerous and so varied that a detailed men-

tion of them will be found only in the text; here suffice it to say that its varied indication will be seen from the fact that the strengths in which it is used vary from 1 in 20,000 to 1 in 10!

Argenti Iodidum. Silver Iodide

Numerous attempts have been made to introduce this salt in various forms—concentrated solution, emulsion, tablets—in the treatment of gonorrhea, but as it does not seem to possess any advantages which would compensate for its disadvantages, the attempts are given up and the salt is again forgotten. I have given it a trial, but have discarded it.

Albargin. Silver Gelatose

A compound of silver nitrate with gelatose containing 13 to 15 per cent. of silver. Coarse brownish yellow powder, readily soluble in water. Incompatible with chlorides. Used in 1-10 to 1 per cent. solution for injection. In the abortive treatment Blaschko uses solutions as high as 2 per cent. On the market in 3 grain (0.2 gm.) tablets which are convenient for making fresh solutions.

Argentamin. Argentamin Solution

This is a solution prepared by dissolving 10 parts each of silver nitrate and 10 parts of ethylene-diamine in 100 parts of water. It is a colorless liquid turning yellow on exposure to light; *not* precipitated by chlorides. Used as injection in ¼ to 1 per cent. solution, as instillation in 1 to 4 per cent. solution.

Argonin. Silver Casein

A compound of silver and casein containing 4.28 per cent. of silver. Fine whitish powder, readily soluble in water, forming an opalescent solution. Clearly soluble in a sodium chloride solution. Incompatible with acids. Used in ½ to 2 per cent. or stronger solutions.

Argyrol. Silver Vitellin

A silver oxide proteid, containing from 20 to 25 per cent. of silver. Black scales, very hygroscopic, freely soluble in water and glycerin, insoluble in oils. Leaves a black stain on the skin and clothes; fresh stains are readily removed by solution of mercuric chloride. Incompatible with acids and most salts.

Used in acute gonorrheal urethritis and in cystitis in strengths of 5 to 25 and even up to 50 per cent. Its anti-gonorrheal properties are beyond question, but its value has been greatly overrated. As a rule it is non-irritating, but there are numerous exceptions. We have seen many cases aggravated by its use; we have seen it produce severe strangury and hemorrhage. Keyes states that he has seen two cases of prostatic abscess due to its intemperate use. It has no germicidal effect on the gonococci, but if used in fresh and not too strong solutions (no stronger than 5 to 10, and only exceptionally 20 per cent.) it generally has a sedative soothing effect, which is of value in acute gonorrhea. Argyrol is worthless in chronic gonorrhea or in any form of non-gonorrheal urethritis.

Cargentos. Colloidal Silver Oxide

Contains 50 per cent. of metallic silver in the form of

silver oxide combined with a modified casein. Black scales readily soluble in water and glycerin; (cargentos does not really form a solution but a very fine suspension). Not precipitated by soluble chlorides. Used in strengths of 5 to 25 per cent. in acute gonorrhea. The suspensions should be freshly prepared. Also on the market in the form of 3 grn. (0.2 gm.) tablets, which are convenient for preparing solutions extemporaneously in the office; the tablets must be crushed or powdered, sprinkled on cold water, permitted to stand for about five minutes and then stirred or shaken until perfect suspension results.

Cargentos urethral suppositories. Each suppository contains 2 grains cargentos, in a vehicle of glycerite of boroglycerin and gelatin.

Collargol. Colloidal Silver

An allotropic form of *metallic* silver, containing about 85 per cent. of silver, with a small percentage of albumin to make its solutions more stable. Readily soluble in water, forming a dark brown solution (or suspension) which remains stable for months. While collargol (and particularly collargol ointment) has many uses in various infections, gonorrhea is not its field. I have given it a trial in a few cases but with indefinite results.

Hegonon

Hegonon is a combination of silver ammonium nitrate with albumose containing about 7 per cent. silver. Light brown powder readily soluble in water; the solution does not coagulate albumin, nor is it precipitated by chlorides. For irrigations it is used in solutions of 1 in 8000 to 1 in

2000, and as an injection in strengths of 1 in 500 to 1 in 200.

Ichthargan. Silver Ichthyol

A combination of ichthyol and silver, stated to contain 30 per cent. of silver. Brown powder freely soluble in water and glycerin. Incompatible with chlorides. As injection in acute gonorrhea used in strength of 1:2500 to 1:500. In chronic gonorrhea in 1 to 3 per cent. solutions. I could never convince myself of any advantages of this silver compound.

Largin

Largin, a silver-protalbin combination, containing 11 per cent. of silver. Gray powder, soluble in 10 parts of water. Used in gonorrhea in ¼ to 2 per cent. solutions. Has little to recommend it.

Nargol. Silver Nucleid

Nargol is a combination of silver with yeast nuclein, containing about 10 per cent. of silver. Readily soluble in water. The solution is not precipitated by sodium chloride, nor does it coagulate albumin. Not decomposed by hot water. Used as injection in acute gonorrhea in ¼ to 1 per cent., in chronic gonorrhea in 1 to 5 per cent., strength. Also on the market in the form of one and two per cent. urethral bougies.

Novargan. Silver Proteinate

A silver albumin compound containing 10 per cent. of silver. Yellow powder, soluble in water, not precipitated by soluble chlorides. As an injection in 2 to 10 per cent. strength. As an instillation in 10 to 20 per cent. strength.

In the latter form it has been particularly recommended in the abortive treatment of gonorrhea.

Omorol

Omorol is an albuminate of silver, containing 10 per cent. of the metal, insoluble in water, but soluble in a sodium chloride solution. It has hardly been used in gonorrhea.

Picratol

Picratol is a compound of silver and picric acid: silver picrate, silver trinitrophenolate; contains 30 per cent. of silver. Yellow floccules, soluble in 50 parts of water. Used in ½ to 2 per cent. solutions.

Protargol. Silver Proteid

A compound of silver and albumin containing 8.3 per cent. of silver organically combined. A light brown powder slowly but completely soluble in two parts of water. The best way to prepare a solution is to sift or sprinkle the required amount of protargol on the surface of required amount of cold water in a graduate, and let it stand for a few minutes when solution will be effected. The solution is not precipitated by sodium chloride but is precipitated by cocaine hydrochloride; this however may be prevented by the addition of boric acid solution (dissolve the cocaine in the boric acid solution and then mix this with the protargol solution). No glycerin should be used in making a solution of protargol as it renders the solution more irritating.

As an injection protargol is used in the strength of $\frac{1}{10}$th to 1 per cent.; as instillation in the strength of 1 to 10

per cent. and as an irrigation 1-50 to ½ per cent. (1:5000 to 1:200). Protargol is one of our most valuable organic silver salts, and is so far the best substitute we have for silver nitrate. Unfortunately it is rather irritating in strong solutions, being in susceptible individuals as irritating as silver nitrate itself. But if we adjust the strength to the acuteness of the symptoms, we can avoid too much irritation. Its field is acute and subacute gonorrhea. In chronic urethritis, gonorrheal or non-gonorrheal, it cannot take the place of silver nitrate. No other drug or chemical can.

Silvol.

A new silver proteid compound, containing 20 per cent. of metallic silver. Claimed to be actively germicidal and may be used in 25 per cent. solutions. On the market in 1 oz. bottles and in 6 gr. capsules in bottles of 50 capsules. The capsules are convenient to make extemporaneous solutions.

Sophol

A combination of silver with methylennucleinic acid containing 20 per cent. of silver. Yellowish powder, readily soluble in water. Used principally in the prophylaxis of ophthalmia neonatorum, in 5 per cent. solution. Non-irritating. Have used it a few times in gonorrhea in 2 per cent. solution, but am unable to make definite statements as to its value in comparison with other silver salts. Solutions should always be freshly prepared with cold water.

CHAPTER XXXVII

MISCELLANEOUS ANTISEPTICS AND ASTRINGENTS

Potassii Permanganas. Potassium Permanganate $KMnO_4$

Dark purple prisms or crystals. Soluble in 16 parts of water, decomposed by alcohol, glycerin and most organic substances, and is therefore preferably used by itself. The statement may sound strange to some, but potassium permanganate is not used by me very frequently. As an injection of proper concentration (1:1000, or 1:500) it is too irritating. Its real value is in weak solutions, 1:3000 to 1:10000, and in large quantities as an irrigation. But as I do not use irrigations in the routine treatment of gonorrhea, I do not often have occasion to use potassium permanganate.

The few drugs which I use in the local treatment of gonorrhea are the following in the order named: (1) An organic silver salt (protargol + argyrol), for acute gonorrhea, (2) silver nitrate for chronic gonorrhea, (3) potassium permanganate, as a change and in non-gonorrheal urethritis, (4) zinc sulphate or lead acetate (5) diluted tincture of iodine.

Chinosol

Chinosol is chemically oxyquinolin sulphate. A yellow crystalline powder of a peculiar aromatic odor and burning

taste; very soluble in water, the solution having an acid reaction. This is a powerful antiseptic, stronger than mercuric chloride and much stronger than carbolic acid. It exerts an antiseptic action even in solutions of 1 in 5000. Nevertheless it is absolutely non-toxic, which renders it very valuable in washing the bladder and irrigating the urethra. The strength of the solutions may vary from 1 in 5000 to 1 in 1000. It has also a decided analgesic action, and in solutions of 1 in 8000 to 1 in 5000 may be used even in hyperacute (non-gonorrheal) urethritis.

Thallini Sulphas. Thalline Sulphate

Thalline sulphate is chemically tetrahydroparamethyl-oxyquinoline sulphate (thalline has nothing to do with the element thallium). White powder soluble in water and in oil. Used in acute gonorrhea in 1 to 2 per cent. aqueous solutions, or in chronic gonorrhea in 5 per cent. oily solutions. This drug is Casper's favorite, and I gave it a pretty thorough trial, and while it is undoubtedly a useful agent, it has no special merits to entitle it to be used in the routine treatment of gonorrhea. It turns brown on exposure, and it and its solutions should therefore be kept in amber-colored bottles protected from light.

Ichthyol. Ammonium Ichthyol-sulphonate

Obtained by the distillation of a bituminous shale found in Tyrol. A reddish brown thick syrupy liquid, peculiar odor and taste. Is not used much in gonorrhea, but it does occasionally give good results in obstinate gleet, in the form of a 2 per cent. injection.

Hydrargyri Oxycyanidum. Mercury Oxycyanide

Mercuric oxycyanide. HgO. $HgCN_2$. A white crystalline powder soluble in hot water. Claimed to be six times more active as a germicide than mercuric chloride. Used as a general antiseptic, as a preservative in lubricants, and to wash out bladder—for the latter purpose in 1 in 5000 to 1 in 3000 strength.

Alumen. Alum. Aluminium and Potassium Sulphate

White powder, soluble in water and in glycerin. A pure astringent, used occasionally in chronic gonorrheal and in non-gonorrheal urethritis, in 1 to 5 per cent. strength. It is seldom prescribed alone, usually as one of the ingredients in astringent injections. Often prescribed with lead acetate (see lead acetate), when it produces a double decomposition with the formation of aluminium and potassium acetate (in solution) and lead sulphate (in precipitation), according to the following reaction:

$$Al_2\ K_2(SO_4)_4 + 4\ Pb(C_2H_3O_2)_2 = 2\ Al(C_2H_3O_2)_3 + 2\ KC_2H_3O_2 + 4\ PbSO_4.$$

℞ Plumbi Acetatis, gr. viij
Aluminis, gr. viij
Aquæ, ℥ iv
Sig. Shake well.

A dram of powdered acacia may be added to the above prescription to keep the lead sulphate better in suspension.

Cupri Sulphas. Copper Sulphate

Large deep blue crystals. Very soluble in water and in glycerin. Powerful astringent. Seldom used in gon-

orrhea of the male, though occasionally it renders excellent service in chronic, dragging cases. It is then used as an injection, $\frac{1}{10}$ to 1 per cent. strength ($\frac{1}{2}$ gr. to 5 grains to the ounce), or as an instillation, 1 to 10 per cent. strength, 2 to 3 drops. The solution may be made with water alone, or with water and glycerin. For instillation, I use a 5 or 10 per cent. solution in *pure* glycerin (no water at all being employed); the crystals are crushed, put into the glycerin, and the bottle is placed in a dish with warm water, and shaken occasionally until dissolved. In female gonorrhea, it is used with good results, combining cheapness with good astringent and bactericidal properties. In the division of the Vienna General Hospital, where the prostitutes are treated, gallons and gallons of copper sulphate solution are used daily.

Plumbi Acetas. Lead Acetate. Sugar of Lead

Colorless crystals or whitish powder, very soluble in water and in glycerin. Efflorescent and readily attracts carbon dioxide from the air, becoming converted into lead carbonate. Should therefore be kept in well stoppered bottles. Pure astringent, used in strength of $\frac{1}{5}$ to 2 per cent. (1 to 10 grains to the ounce of water). Is frequently prescribed in combination with zinc sulphate, when a chemical decomposition takes place, zinc acetate being formed and remaining in solution, and lead sulphate precipitating. The reaction is as follows:

$$ZnSO_4 + Pb(C_2H_3O_2)_2 = Zn(C_2H_3O_2)_2 + PbSO_4.$$

To be properly prepared, the zinc sulphate and the lead acetate are to be dissolved separately each in about half of

the water prescribed, then one solution is to be added slowly and in small portions to the other, shaking after each addition. Prepared this way the lead sulphate is in very fine subdivision, and not in lumps, and when injected it does not irritate the urethra, but leaves a fine coating over it, which produces a prolonged astringent and healing action. A good formula is the following:

Zinci sulphatis, gr. xij
Plumbi acetatis, gr. xij
Hydrastis aquos., fl. ℥ ss
Acaciae pulv., ℥ iss
Aquae q. s. ad. ℥ iv

S. Shake well.

Zinci Acetas. Zinc Acetate

Soft white crystals of a pearly luster. Very soluble in water (in about 2½ parts). Purely astringent. Used as a urethral injection in strengths of ¼ to 3 per cent. Often less irritating than zinc sulphate.

Zinc chloride and zinc iodide are merely mentioned to be condemned. They have no field in any form of urethritis.

Zinci Sulphas. Zinc Sulphate

Colorless crystals or a crystalline powder, very soluble in water (about half a part) and in glycerin (3 parts). Its field is in the terminal stages of gonorrhea, though by its astringent action it sometimes does good service in the first stage also, when the discharge is very profuse, and the other symptoms not very acute. Used as an injection in strength of ¼ to 3 per cent. In the office best kept as a

10 per cent. solution, with a little boric acid to prevent fungous growths.

Of late, I have been in the habit of adding a little zinc sulphate to my silver nitrate injections and instillations. While not interfering with the specific action of the silver, it does counteract the tendency of the latter to cause or increase discharge.

Zinci Permanganas. Zinc Permanganate

Violet brown crystals, very hygroscopic, very soluble in water. As an injection $\frac{1}{10}$ to $\frac{1}{2}$ per cent solution ($1\frac{1}{2}$ to $2\frac{1}{2}$ grains to the ounce). Sometimes very serviceable in old gleety conditions. Should not be rubbed or brought in contact with organic substances (like glycerin) or explosion may occur.

Nizin

Nizin is chemically zinc sulphanilate. On the market in the form of 2 grain tablets, of which one to three to the ounce of water is used as a urethral injection.

CHAPTER XXXVIII

VEGETABLE ASTRINGENTS

Numerous vegetable astringents have been used in the treatment of gonorrhea within the last century or two. To enumerate them would mean to enumerate all drugs containing an astringent principle, such as nutgalls, oakbark, catechu, krameria, matico, tannic acid, gallic acid, etc., etc. They have all fallen practically into disuse, because they are not uniform in their composition, uncertain and unreliable in their action, possess no antiseptic properties and cannot be made sterile. For these reasons they have very properly been discarded. The only vegetable drug that is still used rather frequently in urethral injections, is hydrastis, and this drug is not used on account of its purely astringent action, but it is supposed to exert a specific action in controlling the hyperemia of the urethral canal. It is not on account of its tannic acid that we use it, but on account of its valuable alkaloids hydrastine, and to a lesser extent berberine. Formulas containing hydrastis will be found in the Formulary, at the end of the volume.

Lloyd's aqueous hydrastis is used considerably, and a solution of the alkaloids hydrastine and hydrastinine gives good results occasionally.

CHAPTER XXXIX

LOCAL ANESTHETICS

Cocaine Hydrochloride

Cocaine is the chief alkaloid of coca leaves. Medicinally it is used principally in the form of the hydrochloride. It is in the form of small or large colorless crystals, granular or fine white powder. It is exceedingly soluble in water (less than half a part, that is 10 grains of the salts require only 4 drops or minims of water for complete solution). It was the first local anesthetic discovered (by Dr. Carl Koller, in 1884), and it still remains our surest, promptest and longest lasting agent for producing local anesthesia. It also has the great advantage of contracting the blood vessels of the part to which it is applied, producing a local ischemia, thus rendering operations more or less bloodless. It would be the ideal local anesthetic, but for one thing: it is very toxic, unexpected dangerous by-effects, collapse, etc., are produced by its use, and it has been responsible for a number of deaths. Its toxicity has led the world's great chemists to invent synthetic substitutes, and they have been quite successful. Several are now in general use, but for genito-urinary manipulations only three come under consideration. They are: Alypin, beta-eucain and novocaine.

Alypin. Alypin Hydrochloride

Alypin is chemically the hydrochloride of benzoyl tetramethyl (diamino) ethylisopropyl alcohol. It is a white

crystalline powder readily soluble in water, and quickly absorbed by mucous membranes. It is one of the best, if not on the whole the best, local anesthetic in genito-urinary diseases, because it is practically equal in its effects to cocaine, but is much less toxic. Used in same strength as cocaine, generally 2 to 4 per cent. solutions. As it produces a transient hyperemia, it is best, in cutting operations, to combine it with suprarenal preparations. Alypin may be sterilized by boiling, but it is best to proceed as follows: First boil the water thoroughly, say in a test tube, then add the alypin, and continue the boiling for another minute over a small flame.

Alypin nitrate. As alypin, which is a hydrochloride, is incompatible with silver nitrate, we must use a nitrate whenever we wish to combine alypin with silver nitrate, or when we wish to anesthetize the urethra prior to the use of silver nitrate. The properties of alypin nitrate are practically the same as those of alypin.

Eucaine. Beta-eucaine

This synthetic local anesthetic is on the market in two forms, the hydrochloride and the lactate. Chemically eucaine is trimethylbenzoxypiperidin. The hydrochloride is a white powder, soluble in about 25 parts of water, producing a neutral solution, which can be boiled without decomposition. As a local anesthetic it is weaker, but less toxic than cocaine, nor does it produce the ischemia which the latter does. May be used in 2 to 4 per cent. solutions.

Beta-Eucaine Lactate. Properties the same as of the hydrochloride, but is more soluble in water.

Novocaine. Novocaine Hydrochloride

Novocaine is chemically the hydrochloride of para-amino-benzoyldiethylaminoethanol. Small colorless crystals, very soluble in water (1 part), and the solution may be heated to boiling without decomposition. An efficient local anesthetic, but much less toxic than cocaine. For anesthesia in the urethra 1 to 4 per cent. solution may be used. Its effect is more satisfactory if combined with a few drops of epinephrin or adrenalin solution. There are on the market tablets containing both novocaine and adrenalin or suprarenine.

Novocaine nitrate. As novocaine hydrochloride gives a precipitate with silver nitrate, we must use novocaine nitrate whenever we wish to combine the two (See Alypin Nitrate).

There is also a novocaine base, which is soluble in oils.

CHAPTER XL

ANTIGONORRHEAL REMEDIES FOR INTERNAL USE

Oil of Santalwood, Its Derivatives and Combinations

The principal remedies used internally in the treatment of gonorrhea are the so-called Balsamics. They comprise (1) oil of santalwood and its numerous derivatives and combinations, (2) copaiba and (3) cubebs.

Oleum Santali. Santalwood Oil. East Indian Sandalwood Oil. Oil of White or Yellow Sandalwood

A volatile oil obtained by distilling the wood of Santalum Album. Yellowish somewhat thick liquid, with a peculiar aromatic odor and disagreeable taste. Its virtues depend upon its active principle, santalol, of which it should contain not less than 90 per cent. The dose is 5 to 10 minims, preferably in capsules, 3 or 4 times a day, about an hour after meals.

Oil of santal is a very valuable remedy in gonorrhea; unfortunately we are frequently disappointed in its action, because much of the santal oil of the market is adulterated with the West Indian oil, with castor oil, oil of turpentine, etc. Some of the santal oil dispensed in drug stores is practically worthless. It is therefore important to order the oil in capsule form, specifying the brand of certain reliable manufacturers.

I start with the santal oil quite early in the disease—three to five days after the discharge has been well established. For the first few days I give an alkaline antispasmodic mixture, and then as the acute symptoms have somewhat subsided, I start in with santal oil (see chapter on the treatment of acute gonorrhea) and keep it up, more or less, during the entire course of the disease. I find that it shortens the disease, prevents complications and makes the local treatment easier to manage; that is, the injections cause less irritation than they do without the use of the balsamics.

Santal wood oil is a most valuable drug; unfortunately it has two disagreeable by-effects. They do not manifest themselves in all patients, but they do in a considerable proportion. These by-effects are: gastric irritation, which expresses itself in loss of appetite, belching, heartburn, etc., and in irritation of the kidneys, which shows itself by pain, sometimes quite severe, across the lumbar region, and by a slight albuminuria. These disagreeable by-effects led the manufacturing chemists to improve the santal wood oil, by isolating its active principle, santalol, and combining it chemically in such a manner as to make it insoluble in the stomach; the preparation splitting up and being absorbed in the intestines only. These improvements on santal wood oil are very valuable, only they are more expensive. Still in delicate patients and in patients who, on account of gastric or renal disturbance, cannot tolerate the pure santal wood oil, we are obliged to administer its various derivatives and combinations.

Allosan

This is chemically the allophanic acid ester of santalol, containing 72 per cent. of the latter. Doses and uses same as of oil of sandal wood.

Arheol

Arheol is pure santalol, the active principle of oil of sandalwood. Dose 9 to 12 capsules daily.

Blenal

Blenal is chemically santalol carbonate, or the carbonic acid ester of santalol. It is odorless, tasteless, and claimed to be absolutely nonirritating to stomach or intestines. Dose: 15 drops 3 times a day, on sugar or in hot milk.

Carbosant

Carbosant is santalol carbonate, the same as Blenal, which see.

Gonosan. Gonosan Capsules. Kava-Santal

Gonosan is a solution of the resins of kava-kava in pure sandalwood oil. On the market in the form of capsules only, the dose of which is one to two capsules three to four times a day. It is one of the most valuable combinations we have in the internal treatment of gonorrhea, because the kava-kava has a distinct analgesic effect, and the combination as a rule promptly subdues the pain of urination, strangury, etc. It also seems to reduce the secretion more promptly than sandalwood oil alone.

Santyl. Santalol Salicylate

Santyl is chemically salicylate of santalyl. It contains approximately 60 per cent. of santalol and 40 per cent. of

salicylic acid. Yellowish oily liquid with slight odor and taste. Passes the stomach for the most part unchanged, splitting up into its two constituents in the intestines. It is remarkably free from any irritating effects on the stomach and kidneys, though occasionally we of course meet a man or a woman who complains of eructations. It is very rare however to find a patient in whom it causes even transient albuminuria or pain across the kidneys unless it is given in very large doses. On the market in liquid form and in capsules, containing 8 minims (0.5) each. Dose, 2 capsules 4 times a day or 3 capsules 3 times a day.

Thyresol

Thyresol is chemically the methyl ether of santalol. It is a colorless liquid, of an aromatic odor, insoluble in water, and it is claimed to pass the stomach unchanged, liberating the santalol only in the intestines, thus saving the patient from eructations and other gastric disturbances. On the market in liquid form, in 5 grain capsules and in 5 grain tablets (prepared with magnesium carbonate). Dose: two capsules or tablets 3 or 4 times a day.

Copaiba

This popular remedy incorrectly referred to as Balsam of Copaiba is an oleoresin (that is, it consists of an oil and a resin) obtained from several South American species of copaiba. It is a thick viscid liquid, yellow to brownish yellow in color, having a peculiar, rather disagreeable aromatic odor and a disagreeable acrid taste. Insoluble in water, but soluble in fixed and volatile oils. This is one of the best known and most popular antigonorrheics, but also

one of the nastiest and most nauseating. But few people can stand it without having their stomach upset or their kidneys irritated. It is well to bear in mind that if nitric acid be added to the urine of a person taking copaiba, a precipitate will be formed, which may make the unwary physician believe that the patient has albumen in his urine.

The dose of copaiba is 10 to 30 min. 3 to 4 times a day. If given at all it should be given in capsules. To give it on sugar, in water or even in emulsion is to inflict unnecessary cruelty on the patient.

It is the chief ingredient in the famous (or infamous) Lafayette mixture (mistura copaiba, Lafayette, N. F.), which consists of copaiba, spirit of nitrous ether, compound tincture of lavender, solution of potassium hydroxide, syrup and mucilage of acacia. (For complete formula see Formulary.)

Oleum Copaibae

Copaiba can be separated into the two constituents: an oil and a resin. The resin is almost inert and is no longer official. The oil is official, and may be given in doses of 10 to 30 minims.

Cubeba

Cubeb is the fruit (unripe but full grown) of Piper Cubeba. It is occasionally used in substance, in the form of powder, but more commonly in the form of one of its derivatives, the oleoresin or the oil. The fluid extract is not a good preparation, because it contains alcohol, and we do not wish to give alcohol in gonorrhea. The dose of powdered cubebs is 10 to 60 grains in capsule, cachet or paste

form; the dose of the oleoresin is 10 to 20 minims; of the oil 10 to 30 minims. If at all administered, it should be given only after the acute inflammatory symptoms have subsided.

Copaiba and cubebs are seldom prescribed by venereal specialists, and still more seldom prescribed alone. As a rule we give a combination, in capsule form, of copaiba, oleoresin of cubeb and oil of sandalwood. A small quantity of some pleasant volatile oil, such as oil of cinnamon or cardamom is also added to make the combination less unacceptable to the stomach. If we could have capsules insoluble in the stomach, but soluble in the duodenum, quite an advance would be made in the treatment of our gonorrheal patients. So many stomachs would be saved from unnecessary torture. But unfortunately we are still far from possessing a really stomach-insoluble but intestine-soluble capsule.

Arhovin

A compound or mixture of diphenylamine, thymol benzoate and ethyl benzoate. Offered as a substitute for the santal oil preparations. Generally prescribed in capsules of 4 minims each—one to two capsules three to six times a day.

CHAPTER XLI

URINARY ANTISEPTICS

Hexamethylenamine

This product is obtained by the action of ammonia on formaldehyde. Chemically it is hexamethylene tetramine $(CH_2)_6N_4$, and is known to commerce under a great variety of trade names. Urotropin, under which name it was originally introduced to the medical profession, is supposed to be the purest brand; other names by which it is known are: formin, cystogen, aminoform, uritone, etc. On excretion from the kidneys, it decomposes with the liberation of a small percentage of formaldehyde, but it does this only in acid urine. When administering hexamethylenamine we must therefore make sure that the urine is acid; and if it is not, we must render it acid by the administration of monosodic acid phosphate or similar substances. While the action of hexamethylenamine in clearing up a bacterial urine, in cystitis, pyelitis, etc., is unquestionable, it is of no value in gonorrhea, and its administration without any definite indication is not only useless, but often proves injurious by its irritating effect on the neck of the bladder. There is no question that some brands of hexamethylenamine on the market are more irritating than others, and if given in large doses, not properly diluted, hematuria may result.

The dose of hexamethylenamine is 5 to 15 grains dissolved in 8 to 12 ounces of water 3 to 4 times a day. Unfortunately some doctors are careless in this respect, and we have seen patients with gastro-intestinal, renal and vesical irritation from swallowing the tablets whole, without previous solution in water.

The best way is to order 5 or 7½ grains of hexamethylenamine with 10 grain tablets of monosodic acid phosphate and order one tablet of the former with one or two tablets of the latter to be dissolved in a large glass of water. Tablets are now manufactured containing both chemicals.

I wish to emphasize that in uncomplicated gonorrhea hexamethylenamine has no place. Wherever any instrumentation becomes necessary, such as irrigating the bladder, passing a sound, etc., then it becomes invaluable in preventing infection. In such cases it is advisable to have the patient take a dose when he leaves for the office, and another dose when he gets home.

Amphotropin

This recent addition to the list of urinary antiseptics is chemically Hexamethylenamin Camphorate. It is a white crystalline powder soluble in about 10 parts of water. It renders alkaline urine acid, and has a diuretic action. Claimed to be specially indicated in bacteriuria, chronic cystitis and pyelitis. Contraindicated in acute cystitis and urethritis. Dose 7½ to 15 grains (one to two tablets) 3 times a day, dissolved in water.

Aminoform

This is a trade name for hexamethylenamine.

Borovertin

Borovertin is chemically hexamethylenamin borate, consisting of about equal parts of hexam. and boric acid. White powder soluble in 11-12 parts of water. Dose 8 to 15 grs. 3 times a day.

Cystogen

This is a trade name for hexamethylenamine, which see.

Helmitol

Helmitol is chemically hexamethylenamin-anhydromethylencitrate. White powder, slight acid taste, soluble in 10 parts of water. Same action as hexamethylenamin, but it is claimed that it is active in alkaline as well as in acid urine. Dose: 5 to 15 grains (1 to 3 tablets), dissolved in water 3 to 4 times a day.

Hexalet, Hexal

This is a chemical combination of hexamethylenetetramine (40 per cent.) and sulphosalicylic acid (60 per cent.) It is in the form of small white crystals very soluble in water, of an acidulous taste. Claimed to possess decided advantages over hexamethylenamine. Dose: 15 grains dissolved in a glass of water 3 to 4 times a day.

Urotropin

The purest brand of hexamethylenamine on the market.

Saliformin

Saliformin is hexamethylenamin salicylate. White powder, slightly acid taste, readily soluble in water. Claimed to possess the combined actions of its two con-

stituents, hexamethylenamin and salicylic acid. Dose: 5 to 15 grains 3 to 4 times a day.

Sodium Acid Phosphate, Monobasic

When the urine is alkaline, and full of bacteria, it is often necessary quickly to acidify it, in order to permit urotropin or hexamethylenamin to exert its action, the latter drug as mentioned elsewhere not acting in an alkaline medium. For this purpose of acidifying the urine, one of the best agents is the recently introduced monosodic acid phosphate. This is administered in doses of 15 to 30 grains frequently repeated until the desired effect is obtained. The ordinary sodium phosphate of the market, used as a cholagogue and laxative, is also an acid phosphate, but that contains two atoms of sodium and one atom of hydrogen, in other words it is dibasic; while this salt contains only one atom of sodium and two atoms of hydrogen: it is therefore called monobasic sodium acid phosphate, or monosodic acid phosphate. You should be careful in ordering to specify: *monosodic* or *monobasic,* or you will surely get the common sodium phosphate.

Methylene Blue

Methylene Blue is chemically Tetramethylthionine hydrochloride. It is one of the numberless anilin dyestuffs, but purified. It is a dark green crystalline powder, very soluble in water, and it renders everything it touches intensely blue. It is a nuisance to handle it, and is best administered in the ready combinations, in pill or capsule form. The dose is 2 to 4 grains, with a small dose of nutmeg and extract of belladonna. The patient must be

warned that his urine will become intensely green or blue. If not warned, he may get frightened out of his wits when noticing his urine for the first time, with the result that the doctor may have to answer to a violent bell or frantic telephone ring in the middle of the night.

In pure uncomplicated gonorrhea, methylene blue seems to possess little if any value. In cases of mixed infection, however—and almost every case of chronic protracted gonorrhea becomes sooner or later one of mixed infection—the drug seems to be a useful adjuvant. In impatient patients, in patients of the nervous, neurasthenic stamp, who want to *see* that something is being done for them, methylene blue is a welcome addition to our other remedies.

CHAPTER XLII

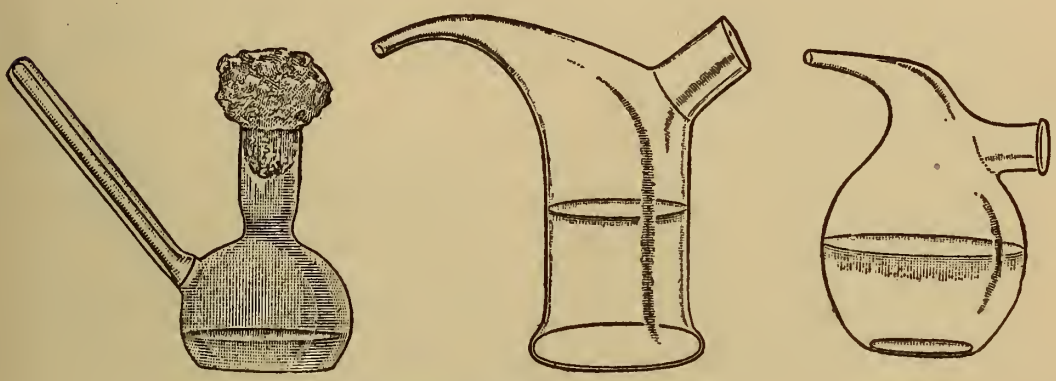
LUBRICANTS

A lubricant (from Latin *lubricus,* slippery) is a substance used to diminish friction and adhesion, to render another substance slippery and easy of passage. In passing catheters, bougies, sounds, urethroscopes, cystoscopes, etc., we must use a lubricant, as otherwise the instrument would not pass at all, or would pass only with difficulty and with damage to the mucous membrane. There are many formulas for lubricants and there are many artificial water-soluble lubricants on the market, but even the best of them do not possess the same amount of lubricity that is possessed by the fats and oils, such as petrolatum, paraffin or olive oil, for instance. And in attempting to pass a sound through a narrow, tortuous or even spasmodic stricture nothing will answer the purpose as well as filling the urethra with sterilized olive oil.

Nevertheless we are obliged to use water-soluble lubricants, and for these reasons. We often have to follow our dilatation by sounds, bougies or dilators with silver nitrate solution, or with a solution of some other chemical in water. If we use an oily or fatty lubricant it coats the urethra with a layer of oil or fat, so that the watery solution cannot reach it properly and exert its proper effect. Then it is much more difficult to sterilize instruments on which an oily lubricant has been used. And last, rubber goods are

injuriously affected by oils and fats. For these reasons substitutes for the natural lubricants are in common use, but I repeat the best of them are not fully satisfactory, and personally I still use occasionally sterilized and salicylated oil for the urethra and petrolatum for the rectum.

Glycerin is not very satisfactory, because it does not



Containers for Lubricants

possess sufficient lubricity, in cold weather it is thick and sticks, and it often causes burning and irritation in the urethra.

The artificial lubricants generally have chondrus (Irish moss) and glycerin or tragacanth for a base. One of the best formulas is the one originally proposed by Casper. It has the following composition:

Hydrargyri oxycyanidi, 0.246
Tragacanthae, 3.0
Glycerini, 20.0
Aquae destill. steril., 100.0

Some hypersensitive urethras feel some irritation from the use of this lubricant. It is also a little too thick, particularly in cold weather. I have therefore modified the

formula, and this yields me a more satisfactory product. My modified formula is as follows:

Hydrargyri oxycyanidi, 0.2 (3 grains)
Tragacanthae, 2.0 (30 grains)
Glycerini, 20.0 (5 drams)
Aquae destill. steriliz., 120.0 (4 ozs.)

Keep well covered in small, wide mouthed bottles, or have it filled in tin tubes.

Of the ready-made lubricants on the market, K-Y jelly is the best known and the one generally preferred. Others are lubrichondrin, lubraseptic, etc.

The ready-made lubricants come in collapsible tin tubes, a little being squeezed out each time as needed, the screw cap being kept on in the meantime. This prevents the contents from becoming contaminated. The lubricant ordered from the druggist or prepared by the physician is kept in wide-mouth, well corked or stoppered bottles. Better however are the lubricant containers presented in the accompanying illustrations. The proper amount of lubricant is easily poured out when wanted, the opening in the meantime being protected by corks or cotton stoppers. One container can be used for the water-soluble lubricant, another one for sterile oil, plain or salicylated.

℞ Ac. salicylici, gr. x
Olei olivae, ℥ iv

Heat on a water bath to 100° C. for fifteen minutes, dissolve the salicylic acid, cool, strain, heat again for five minutes and pour in sterilized bottle or container.

FORMULARY.

PRESCRIPTIONS FOR ACUTE AND CHRONIC GONORRHEA

LAFAYETTE MIXTURE

℞ Copaibae ..... ℥j [30.0]
Liq. potassii hydrox. ..... ℈ij [8.0]
Spir. aetheris nitrosi ..... ℥j [30.0]
Ext. glycyrrhizae ..... ℥ss [15.0]
Syr. acaciae ..... ℥iv [120.0]
S. ℈ij—℥ss 3 times a day.

This nauseous mixture may be made a little less nauseous by flavoring it with a few drops of oil of wintergreen or oil of cinnamon.

MISTURA CAPAIBAE, LAFAYETTE, N. E.

The National Formulary gives a somewhat different formula for Lafayette mixture. It is as follows:

℞ Copaibae ..... ℥j [30.0]
Liq. potassii hydrox. ..... ℈ij [8.0]
Spir. aetheris nitrosi ..... ℥j [30.0]
Tinc. lavandulae comp. ..... ℥j [30.0]
Syrupi (U. S. P.) ..... ℥ijss [75.0]
Mucil. acaciae q.s. ad ..... ℥viij [240.0]
S. ℈jj—℥ss 3 times a day.

CHAPMAN'S COPAIBA MIXTURE

Copaibae ..... ℥j [30.0]
Spir. aetheris nitrosi .....℥j [30.0]
Tinc. lavand. comp. ..... ʒij [8.0]
Tinc. opii ..... ʒj [4.0]
Muc. acaciae ..... ℥ss [15.0]
Aquae q.s. ad ..... ℥iv [120.0]
S. ʒj—ʒij t. i. d. 3 to 4 times a day.

℞ Potassii citratis ..... ʒij [8.0]
Potassii bromidi ..... ʒij [8.0]
Liquor potassii hydroxidi ..... ʒi [4.0]
Ext. hyoscyami fl ..... ʒi [4.0]
Ext. tritici fl ..... ʒvi [24.0]
Aquae, q.s. ad ..... ℥vi [180.0]
Sig. Tablespoonful three or four times a day in, or followed by, half a glass of water.

℞ Hexamethylenaminae ..... gr. v [0.3]
Sodii benzoatis ..... gr. x [0.6]
M.f. pulv. .....No. i .....
Tales doses .....No. xij .....
S. One powder in a glass of water three to four times a day.

℞ Hexamethylenaminae ..... gr. vij ss [0.5]
Sodii (mono) acidi phosphatis ..... gr. xv [1.0]
M.f. tabella .....No. i .....
Tales doses .....No. xxx .....
S. One in a glass of water three to four times a day.

℞ Methyllthioninae hydrochlor ..... gr. ij [0.12]
Phenyl salicylatis ..... gr. iij [0.18]
Extr. belladonnae ..... gr. ⅙ [0.01]
Pulv. cinnamomi ..... gr. ss [0.03]
M.f. capsula .....No. i .....
Tales doses .....No. xxx .....
S. One capsule three to four times a day.

℞ Methylthioninae hydrochl. (methylene blue)
..... 3i [4.0]
Phenyl salicyl. (salol) ..... 3iij [12.0]
Ol. santali ..... 3v [20.0]
Oleores. cubebae ..... 3v [20.0]
Pancreatini ..... 3i [4.0]
Ol. cinnamomi ..... gr. vi [0.3]
Div. in caps. gelat. no. lx.
One or two capsules two hours after each meal.

I. FORMULAS OF CLEANSING INJECTIONS

℞ Sodii bicarbonatis ..... gr. cl [10.0]
Aquae destill. steriliz. ..... 0j [500.0]
Mix with equal volume of hot water and inject two or three syringefuls *every* hour or two. (If you cannot do it so often, do it as often as you can.)

℞ Sodii boratis ..... gr. cl [10.0]
Aquae destill. steriliz. ..... 0j [500.0]
Directions same as with injection No. 1.

℞ Sodii chloridi c. p. ..... gr. xxx [2.0]
Aquae destill. steriliz. ..... 0ij [1000.0]
Directions same as with No. 1.

II. FORMULAS FOR GONOCIDE SOLUTIONS

℞ Protargol ..... gr. viij [0.5]
Aquae destill. ..... ʒvijss [200.0]
M. ft. solutio lege artis. Detur in vitro nigro.
Sig. Use one syringeful at a time (two to four drams, depending on the capacity of the man's anterior urethra), and hold in five to ten minutes.

You must be sure that the solution of protargol is properly prepared. Improperly prepared it contains lumps and will prove irritating. The best way to make a solution of protargol is to pour the water into a wide graduate or a mortar, and then throw, with a sifting motion, the protargol on the water; it is light and floats. Leave it without shaking or stirring; in a few minutes it will be found to have became dissolved. As seen, I commence with a ¼ per cent. solution (1:400). The amount may be raised to one or two per cent., but I seldom go beyond one per cent.

Protargol should not be prescribed with zinc sulphate: the two are incompatible.

℞ Argyrol .... ʒijss—ʒv—ʒxijss [10.0—20.0—50.0]
Aquae destill. ..... ʒviij [240.0]
Use the same way as the protargol solution.

℞ Protargol ..... gr. viii [0.5]
Argyrol ..... ʒijss [10.0]
Aquae destill. ..... ʒvij [200.0]
Sig. Use one syringeful 3 to 4 times a day.

The combination of the two silver salts, original with the author, often gives very happy results. Argyrol alone is

often too mild and inefficient, protargol is sometimes too irritating, but the combination is both efficient and soothing. I could find no incompatibility between the two chemicals.

℞ Thalline sulph. ..... gr. xv [1.0]
Aquae destill. ..... ʒvij [200.0]

This is a ½ per cent. solution; the strength may be raised to 2 per cent., but 1 per cent. is generally the most satisfactory.

℞ Ichthyol ..... ʒi—ʒjss [4.0 to 6.0]
Aquae destill. ..... ʒviij [240.0]

This is used in "dragging" cases and is good as an alternate injection.

III. FORMULAS FOR ASTRINGENT INJECTIONS

℞ Zinci sulphatis ..... gr. viij [0.5]
Aquae destill. ..... ʒiv [120.0]

Inject three or four times a day.

℞ Zinci sulphatis ..... gr. viij [0.5]
Plumbi acetatis ..... gr. viij [0.5]
Aquae destill. ..... ʒiv [120.0]

Shake well. Inject three or four times a day.

℞ Zinci sulphocarbolatis ..... gr. xvj [1.0]
Aquae destill. ..... ʒiv [120.0]

℞ Zinci sulphatis.
Plumbi acetatis, ... āā gr. viij [0.5]
Tr. opii ..... ʒj [4.0]

Tr. catechu ..... ℥ij [8.0]
Aquae ad ..... ℨiv [120.0]

The following, however, is my favorite:

℞ Zinci sulphatis ..... gr. viij [0.5]
Bismuthi subcarbon (vel. subnitr.) ... ℥iij [12.0]
Bismuthi subgall ..... ℥j [4.0]
Hydrastis aquos ..... ℨj [30.0]
Pulv. acaciae, ... ℥jss [6.0]
Aquae ad ..... ℨiv [120.0]
M. f. mistura lege artis.
Keep bottle flat and shake well before using.

[If prepared by a competent pharmacist this prescription makes a smooth homogeneous mixture, like an emulsion. Prepared by an incompetent pharmacist, it is lumpy, gritty, and often proves irritating to the urethra.]

This leaves a protecting coating over the urethral canal, exerting a soothing and healing influence. The coating remains in the urethra until the next urination. This injection finishes up the treatment.

Ultzmann's Injection:

Zinci sulphatis ..... gr. viij [0.5]
Aluminis ..... gr. viij [0.5]
Ac. carbolici ..... gr. iv [0.25]
Aquae ..... ℨiv [120.0]

Injection in non-gonorrheal urethritis:

℞ Ac. carbolici (phenol) ..... gr. xij [0.8]
Zinci sulphatis ..... gr. xx [1.3]
Aluminis ..... gr. xxx [2.0]
Aquae ..... ℨviij [250.0]

S. Inject 3 to 4 times a day, holding in the injection 3 to 5 minutes.

Europhen ..... 3i [4.0]
Ol. amygd. express. ..... ℥j [30.0]
S. gtt. V-X in the posterior urethra, in chronic posterior urethritis and prostatitis.

Thymol iodide ..... 3i [4.0]
Ol. amygd. express. ..... ℥j [30.0]
S. Use same as previous prescription. Both prescriptions may be made a little weaker, using 1 part of the drug in 10 parts of almond oil or olive oil.

Europhen ..... 3ss [2.0]
Thymol iodide ..... 3ss [2.0]
Vaselini liquidi albi ..... 3x [40.0]
S. gtt. V-X in the posterior urethra daily or every other day, in obstinate chronic posterior and anterior urethritis. Useful also after dilatation of strictures, as it probably helps somewhat in their absorption.

℞ Zinci sulphatis ..... gr. xv [1.0]
Plumbi acetatis ..... gr. xv [1.0]
Extr. krameriae fl. ..... 3iij [12.0]
Tinc. opii ..... 3ij [8.0]
Aquae destill. q.s. ad ..... ℥vi [180.0]
S. Inject 3 to 4 times a day. An old fashioned prescription, but quite useful in gleet.

℞ Zinci permanganatis ..... gr. iij
Aquae destill. ..... ℥vi
S. Inject 3 to 6 times daily.

FOR BALANITIS:

℞ Zinci oxidi ..... ʒi [4.0]
Bism. subnitratis ..... ʒi [4.0]
Ac. salicylici ..... gr. v [0.3]
Petrolati albi ..... ℥j [30.0]

℞ Perhydrol (100 vol. Hydrogen dioxide), ℥j [30.0]
S. Touch up any erosions with a small cotton swab dipped in perhydrol and then wash with ordinary hydrogen dioxide. (In erosive balanitis.)

FOR ADENITIS OR BUBO:

℞ Ung. hydrargyri ..... ʒij [8.0]
Guaiacoli ..... ʒi [4.0]
Ung. belladonnae ..... ℥i [30.0]

℞ Plumbi Iodidi ..... ʒi [4.0]
Ung. Potassii Iodidi ..... ℥i [30.0]

℞ Ung. hydrargyri ..... ʒij [8.0]
Guaiacol ..... ʒss [2.0]
Adipis ..... ʒvi [24.0]
M. ft. unguentum .....
Sig. Apply three times a day covering with gauze.

ACUTE PROSTATITIS

℞ Morphinae sulphatis ..... gr. ⅓ [0.02]
Ext. belladonnae ..... gr. ⅓ [0.02]
Ol. theobromae ..... gr. xx [1.3]
For one suppository. Tal. dos. xij.
S. One 3 times a day.

℞ Iodoformi ..... gr. ij [0.12]
Antipyrini ..... gr. v [0.3]
Morphinae sulphatis ..... gr. ¼ [0.015]
Ol. theobromae ..... gr. xxv [1.5]
Sig. One 3 times a day.

CHRONIC PROSTATITIS

℞ Iodoformi ..... gr. i [0.06]
Morph. sulph. ..... gr. ¼ [0.015]
Ol. theobromæ ..... gr. xxv [1.5]
M.f. supp. No. 1. Tal. dos. xij.
Sig. One t. i. d.

℞ Potassii iodidi ..... gr. ij [0.12]
Iodi puri ..... gr. ¼ [0.015]
Morph. sulph. ..... gr. ⅙ [0.01]
Ol. theobromæ ..... gr. xxx [2.0]

℞ Ichthyol ..... gr. ij [0.12]
Potassii iodidi ..... gr. iij [0.18]
Morph. sulph. ..... gr. ¼ [0.015]
Ol. theobromæ ..... gr. xxx [2.0]

℞ Bism. iodo-resorcin-sulphonatis .... gr. ij [0.12]
Zinci oxidi ..... gr. v [0.32]
Ol. theobromæ ..... xxv [1.5]

℞ Antipyrini ..... gr. v [0.32]
Sodii iodidi ..... gr. iij [0.18]
Ol. theobromæ ..... gr. xxx [2.0]

℞ Morph. sulph. ..... gr. ¼ [0.015]
Ext. belladonnæ ..... gr. ⅙ [0.01]
Ol. theobromæ ..... gr. xxx [2.0]

EPIDIDYMITIS

Apply large gauze compresses wrung out of a hot solution of aluminum acetate containing some glycerin:

℞ Liquoris alumini acetatis,
Glycerini ..... āā ʒviii [250.0]
Aquae ..... Oj [500.0]
M. ft. mistura.

The compress is to be covered with oil silk and, if the patient must be up and about, the whole put into a well fitting suspensory bandage. The compress should be wrung out of the hot solution every hour.

A good ointment properly applied is also very beneficial. My favorite formula is:

℞ Unguenti hydrargyri ..... ʒii [8.0]
Guaiacolis .....
Ichthyolis ..... } .... āā ʒj [4.0]
Unguenti belladonnae ..... ʒss [15.0]
Adipis benzoinati, q.s. ad ..... ʒii [60.0]
M. Sig.: Apply externally twice or three times a day.

℞ Hydrargyri ammoniati ..... ʒss [2.0]
Methylis salicylatis ..... ʒj [4.0]
Morphinæ sulphatis .....gr. iv [0.25]
Atropinæ sulphatis ..... gr. j [0.06]
Adipis lanæ ..... ʒss [15.0]
Adipis benzoinati ..... ʒj [30.0]
M. ft. ung.

SUPPOSITORIES FOR GONORRHEAL PROCTITIS

℞ Protargol ..... gr. i [0.06]
Ol. theobromae ..... gr. xx [1.3]
M.f. suppos. No. 1. Tal. dos. No. xxx
Sig. one t. i. d.

℞ Argyrol ..... gr. v [0.3]
Ol. theobromae ..... gr. xxv [1.5]
M.f. suppos. No. 1. Tal. dos. No. xxx
Sig. one t. i. d.
These may be used twice or three times a day.

GONORRHEAL ARTHRITIS

Rub the painful parts with an ointment consisting of methyl salicylate, lard and woolfat:

℞ Methyl salicylatis ..... ℥ij [8.0]
Adipis .....℥iv [16.0]
Adipis lanae ..... ℥iv [16.0]

This is well rubbed in, covered with non-absorbent cotton and oiled silk or rubber tissue. The whole is held in place by a well fitting gauze or rubber bandage.

Instead of the ointment I often have the joints and painful parts painted with the following mixture:

℞ Acidi salicylici ..... ℥j [4.0]
Menthol ..... gr. xv [1.0]
Guaiacol ..... gr. xxx [2.0]
Alcohol ..... ℨi [30.0]

The joint is painted, then protected with non-absorbent

cotton, oiled silk and rubber tissue the same as after the use of the ointment.

GONORRHEA IN WOMEN

℞ Aluminis ..... ℥iv [120.0]
Zinci sulphatis ..... ℥i [30.0]
Cupri sulphatis ..... ℥iv [15.0]
Sig. Tablespoonful to 1 or 2 quarts of water.

℞ Protargol ..... gr. v [0.3]
Olei theobromae ..... ℥i [4.0]
M. ft. suppos. ovale vel glob. No. I.
D. tal dos. No. xij.
Sig. One at night; inserted high up in the vagina.

VULVO-VAGINITIS IN LITTLE GIRLS

℞ Protargol ..... gr. ss [0.03]
Acidi borici ..... gr. v [0.32]
Ol. theobromae ..... gr. xxv [1.5]
M. f. suppos. No. 1. Tal. dos. No. xxx
Sig. One suppository at night.

CHANCROIDAL URETHRITIS

℞ Iodoformi ..... gr. ij [0.12]
Ol. theobromae ..... gr. xij [0.8]
M. f. suppos. No. 1. Tal. dos. No. xij.
Sig. One t. i. d.

SYPHILITIC OR CHANCRE URETHRITIS

℞ Unguenti hydrargyri ..... gr. i [0.06]
Ol. theobromae ..... gr. x [0.6]

M. f. suppos. urethral. No. 1. Tal. dos. xxx
Sig. One bis vel ter in die.

Instead of using cacao butter alone as a base, the pharmacist may be instructed to add two or three grains of yellow wax to each suppository, so that the prescription would read:

℞ Unguenti hydrargyri ..... gr. j [0.06]
Cerae flavae ..... gr. ij [0.12]
Ol. theobromae ..... gr. x [0.6]
M. f. suppos. urethr. No. 1.

FOR CONDYLOMATA

℞ Resorcinol,
Hydrarg. chlor. mitis .....ãã 3ij [8.0]
M. ft. pulvis subtilis
Sig. Apply externally.

FOR THE PREVENTION OF GONORRHEA

℞ Calomel ..... 50 gm.
Liquid petrolatum ..... 80 c.c.
Adeps lanae ..... 70 gm.

Inject a few drops into the fossa navicularis, and rub some of it on the glans and sulcus.

LUBRICANTS

℞ Mercury oxycyanide 0,246
Tragacanth 3.0
Glycerin 20.0
Aquae destill. steril. 100.0
(Casper)

Some hypersensitive urethras feel some irritation from the use of this lubricant. It is also a little too thick, particularly in cold weather. I have therefore modified the formula, and this yields me a more satisfactory product. My modified formula is as follows:

℞ Mercury oxycyanide ..... 0.2 [3 grains]
Tragacanth ..... 2.0 [30 grains]
Glycerin ..... 20.0 [5 drams]
Aquae destill. steriliz. ..... 120.0 [4. ozs.]

Keep well covered in small, wide mouthed bottles, or have it filled in tin tubes.

℞ Ac. salicylici ..... gr. x [0.6]
Olei olivae ..... ʒiv [120.0]

Heat on a water bath to 100° C. for fifteen minutes, dissolve the salicylic acid, cool, strain, heat again for five minutes and pour in sterilized bottle or container.

In "dragging" gonorrhea and in gonorrheal and post-gonorrheal neuroses:

℞ Elix. ferri, quinin. et strych. phosphat., ʒvj [180.0]
S. ʒi 3 times a day, in a little water, before or after meals.

℞ Syrupi hypophosphit. compos. ..... ʒvi [180.0]
S. ʒi 3 times a day, in a little water, after meals.

The above two prescriptions may look rather strange in a book on gonorrhea, but I have placed them here purposely to impress on the physician's mind the importance of pay-

ing attention to the patient's general health while treating his gonorrhea. Many physicians are apt to forget when treating a certain definite condition (like gonorrhea or syphilis) that the patient's general condition is also of importance. On some people their gonorrhea produces a very depressing effect. It is possible that the gonotoxin causes anemia, but besides this the depressing effect of worry about their disease interferes with their appetite, and they often run down and lose flesh, etc. In such conditions it is just as important, perhaps more so, to give the patient tonics as it is to give him sandalwood internally and injections locally. In fact the patient's gonorrhea will often show decided improvement if we stop all kinds of anti-gonorrheal treatment for awhile and just give him tonics, such as the compound syrup of hypophosphites, elixir of iron, quinine and strychnine, the compound glycerophosphates, malt, malt and cod liver oil, etc. And where the patient develops a condition of neurasthenia, then the neurasthenia must be treated at the same time, and just as thoroughly as his gonorrhea is.

[For the treatment of Neurasthenia see the author's "Treatment of Sexual Impotence and Other Sexual Disorders in Men and Women."]

URETHRAL SUPPOSITORIES AND BOUGIES

As will be noticed, I have not recommended any bougies or urethral suppositories for gonorrheal urethritis. Dozens of times I have given them a trial and each and every time I have been disappointed. It seems so plausible that bougies which remain in the urethra for many minutes or hours at a time should exert a much better effect than injections, which are immediately thrown out or remain in

the urethra only a few minutes at most. But unfortunately practice does not always corroborate theories. Theoretically bougies *ought* to be efficient, more efficient than injections, but practically they are *not*.

Whether it is due to the fact that they act as an irritant or whether the vehicle (be it cocoa butter or glycerin-gelatin) prevents the action of the chemical agent upon the gonococci, making the penetrating power even much less than that of an aqueous solution, the fact is that bougies have in my hands proved much less efficient than injections, and sometimes they have even proved quite irritating. I have therefore discarded them.

Of course it is possible that some new vehicle will be invented which will both possess penetrating power and will permit the chemical to remain in contact with the mucous membrane for a long time. Should such a vehicle be invented, then I will give the suppositories and bougies another trial. Until then I prefer to continue with aqueous solutions, and advise others to do the same. Still if one wishes to use bougies, P. D. and Co.'s Nargol bougies are as good as any.

An agreeable and efficient method seems to be the incorporation of the silver salts, etc., in a chondrus jelly vehicle. I have given such preparations [Tuboblenal, etc.] a moderate trial, but unfortunately they are not manufactured in this country; and it is questionable whether they would in the long run prove so very much superior to aqueous solutions.

URETHRAL DRAINS. The same objections that I have against bougies, I have, but in a still greater measure, against urethral drains. The pus that lies superficially on

the urethral mucous membrane is very well washed away by urination, while the pus and gonococci that are hidden in the crypts of Morgagni and the glands of Littré are not accessible to the "drains." And besides, all theoretical considerations apart, the urethra is a delicate tube which resents all foreign bodies, and drains are apt to cause considerable irritation.

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A Practical Treatise on the Causes, Symptoms, and

Treatment of Sexual Impotence

And Other Sexual Disorders in Men and Women

BY

WILLIAM J. ROBINSON, M.D.

Chief of the Department of Genito-Urinary Diseases and Dermatology, Bronx Hospital and Dispensary; Editor The American Journal of Urology, Venereal and Sexual Diseases; Editor and Founder of The Critic and Guide; Author of Sexual Problems of Today; Never Told Tales; Practical Eugenics, etc.

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